



How to  
**GROW FOOD**  
**IN YOUR POLYTUNNEL**  
All year round

Mark Gatter & Andy McKee

How to Grow Food  
**in Your Polyunnel**



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# Dedications

To Andy's beautiful wife Toni, who suffered the most horrendous bout of flu during the preparation of this book, and never complained once that he was ignoring her.

To Mark's serene and unruffled wife Linda, who is a much better person than he'll ever be. And *far* better organised.

To Frances Kelly, our agent, for making all this possible.

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# Introduction

A polytunnel is perhaps the most underrated tool in the modern kitchen garden. Being able to create a warm, sheltered microclimate confers huge advantages, because using anything from a few bottle cloches to a glass greenhouse allows us to grow tender plants in conditions they would never cope with otherwise. This doesn't just widen the range of crops you can grow; it also increases their yield, vigour and harvesting period. Polytunnels are an extension of the same idea but on a much larger scale, which has some dramatic benefits.

## Andy says:

"We're not just talking about the plants, either. The label 'growing under cover' doesn't tell you anything about just how *nice* I find it to step into my own polytunnel. Warm, bright and spacious, with a handy hook for my soggy raincoat, there's simply no better place for a gardener to be on a blustery, wet day in April. With not a slug in sight, the staging is busy with modules full of tiny plants in tip-top condition and the soil beds are already filling up. With my sowing plan hanging from a little hook on a suspended shelf, everything I need is right to hand – except the kettle. Now there's a thought . . ."

In this book we give you the tools you need to make the most out of every precious inch of covered space throughout the whole year. Chapter 1, 'Through the seasons', gives a brief overview of activity in the tunnel over the year. Chapter 2, 'The tunnel's first year', is written specifically for newcomers to polytunnel growing, but the following seasonal chapters provide a more detailed season-by-season guide to using your tunnel, and a dedicated chapter to help you plan for the hungry gap. Chapter 8, 'Plants for the polytunnel', contains more detailed information about how to grow individual vegetables, herbs and fruits, and is followed by a chapter on seed saving, which we really hope you will try. Chapter 10, 'Dealing with pests and diseases', should help when dealing with some common tunnel nasties. The 'tips' boxes scattered throughout the book contain a collection of our favourite tunnel growing strategies, but no doubt you will find many more as your own growing experiments bear fruit. Finally, we have included charts to help you use your tunnel in tandem with your outdoor plot and a Resources section for further information and suppliers.



The technical aspects of polytunnel use, such as planning, buying, erecting and maintaining tunnels, are detailed in our previous book, *The Polytunnel Handbook* (see Resources section).

### Mark says:

“Imagine gardening in a thin T-shirt in the middle of winter . . . and, of course, to do so outside would be to invite hypothermia anywhere close to where I live. However, it’s not unusual to find me dressed like that in the polytunnel, even in January, thinning the carrots or picking the evening’s salad. Aside from a polytunnel being an amazing extension to a vegetable garden, the benefit of a warm, calm and bright spot to sit in – *in a garden* – is a wonderful thing to have when the rest of the world seems cold, damp and grey.”

Many people think of polytunnels as a type of cheap greenhouse, but there are some important differences, such as the fact that polytunnels need more attention to ventilation and tend to have higher humidity than their rigid cousins. The main difference, however, is one of scale. Because polytunnels are so much more affordable than greenhouses (for typical sizes, ‘double the area for half the price’ is a useful maxim) they tend to be bigger. This means that they hold more heat, and so take longer to cool down at night.

The scale of polytunnels also means that they can be used in ways that greenhouses can’t – such as for growing a block of sweetcorn much earlier than outside, *without even missing the space*.

The large scale of a polytunnel makes it feasible to shelter crops that you might never have considered growing under cover (it is difficult to envisage a greenhouse grower being able to give a double row of broad beans space during the winter, for example), and growing in soil beds rather than containers is common. This means that, to be successful, tunnel gardeners need to develop a better understanding of living soil and pest management. Please note that we use the word *management* rather than *control*, as finding an acceptable balance of pests and predators that needs very little intervention on your part is clearly preferable to waging a constant battle against nature. Since inside a tunnel there is no rain to wash chemical residues down to the subsoil, the use of pesticides is a really bad idea. Instead we recommend a balanced organic approach to the tunnel ecosystem.

A polytunnel can be like an island stolen from a warmer country and transported to your patch, but you should resist the urge to think of it in isolation. In the summer, when the doors at both ends are open, you will find that the air, insects, birds and other wildlife will move freely in and out of the tunnel. To make the most of this wonderful microclimate, you too should think of it as an integral part of the wider garden.

## **The main uses for polytunnels in vegetable growing**

### **Hot-weather crops**

The most obvious use for a tunnel is to grow plants such as tomatoes, cucumbers and aubergines, all of which will grow faster and produce bigger harvests than outdoor plants.

### **Propagation**

There is a certain satisfaction in raising your own plants. With a little know-how it is quite possible to produce your own stock for a fraction of the price you would pay at your local garden centre. Not only that, but the comfortable environment in a polytunnel allows you to continue to enjoy your hobby even when the weather is decidedly unfriendly.

### **Extending the growing season**

Since spring in a polytunnel comes six weeks earlier and summer ends four weeks later than outside, growing under cover can greatly increase the yield from crops that benefit from a long growing period, such as chillies and celeriac.

### **Overwintering**

A polytunnel can be used as a protected 'holding zone' for the winter, when there is little or no plant growth taking place inside or out. This means that it can be used as a walk-in larder for a variety of plants, particularly salad leaves, and that young plants with established root systems can be ready and waiting for the arrival of spring for a really early start.

### **Eliminating the 'hungry gap'**

Your polytunnel can provide food throughout that bane of temperate-climate vegetable gardeners, the 'hungry gap'. This is the period from spring to midsummer when there is little or no fresh produce coming from the outdoor vegetable plot, and stored winter produce has begun to deteriorate. For growers attempting to be as self-sufficient as possible, growing for the hungry gap is so important that in this book we have given it a dedicated chapter, as although it is not a true season it needs a greater degree of planning than any other time of year.

# Through the seasons

The traditional idea of a greenhouse is that it should be chock-full of hot-weather plants, particularly tomatoes, to 'put on a really good show' in the summer. Towards autumn this generates a glut that is largely given away to friends and neighbours, either as ripe fruit or as chutney. Finally, at the end of the season, the plants are stripped out and the whole structure scrubbed down for winter, when it is used as a storage area for gardening equipment, children's toys and perhaps a few overwintering containers from the patio.

This routine is typical, simply because it fits within the constraints of a small greenhouse. Thankfully, the increased possibilities of a larger growing space mean that we can – and should – throw this approach out of the window. Polytunnels are far more useful, and with just a few basic changes you can produce harvests to be proud of right through the year. This means taking a more balanced approach, rather than growing for a single season: being prepared to take some crops out earlier than you otherwise might, and to start some plants in containers that you might ordinarily sow straight into the soil.

There is a certain rhythm to this kind of gardening, which the month-by-month-photographs in the second colour section will help you to appreciate.

## Spring (mid-February to early April)

Polytunnel spring begins long before any activity can be detected outdoors. The salad crops, which have been standing fresh but inactive through the depths of winter, tend to be the first to take advantage of the light by slowly accelerating into growth. If you can make space, plant a few first early seed potatoes (always use certified stock in the polytunnel to avoid the risk of blight), which will be ready well before the outdoor harvest.

As light levels increase, some plants will bolt (run to flower) almost immediately. This is the cue to begin new sowings of crisp salad leaves and staples such as baby carrots, radishes and kohlrabi, all of which grow very rapidly once established. It's also time to start eating up most of the remaining standing crops such as turnips and fully grown carrots, as they too will bolt soon and become woody.

The most critical parameter in the tunnel in the early spring is not heat but light. Polythene film transmits slightly less light than glass even when it is new, and the transmission falls off a little each year as the film becomes more porous. While this is insignificant at other times of year, in early spring a cold frame or small greenhouse is very valuable. Even if heat is provided, without adequate light seedlings will quickly become leggy and feeble, so if you are unable to provide a bright environment elsewhere it is usually better to wait for a few weeks until the light level improves.

As spring continues the potting benches in the tunnel gradually fill up, both with hot-weather seedlings for the polytunnel and with early starts for the outdoor plot. A capillary bed (see Chapter 6, page 49) will prove invaluable because it provides water from the roots upward, saving time on watering and reducing losses from damping off (a fungal infection, common in warm, crowded and wet conditions, that wipes out whole trays of seedlings with astonishing speed). As seedlings become ready to plant in the outdoor garden, plant a few of them in the tunnel as space permits, to stretch the harvesting season. Broad beans, for example, will be ready three weeks earlier in the tunnel than the same seedlings planted outside, and will be a very welcome addition to your diet during the hungry gap.

## Summer (mid-April to late September)

Hot-weather crops grow fast once the weather is warm and will need training. This year's harvests will begin very quickly, starting with salads and 'first early' potatoes and followed by broad beans, kohlrabi and strawberries. Even after chillies and tomatoes have been planted out and potted on, the potting bench will remain crowded with seedlings for outdoor use, safe from predators and late frosts. Cucumbers should finally make it into the tunnel beds some time in June and will grow strongly after a couple of weeks' settling in. Once they get going they will need almost daily attention to keep them from sprawling away from the supports.

By July things will be in full swing and the harvests of tomatoes, chillies, cucumbers and peppers should have begun, even in indifferent summers, and flowers will appear on the melons. The tunnel should feature some visible flowers to help attract pollinating insects such as hoverflies (which are likely to snack on aphids while visiting), and with luck they will be followed by a toad or two to help keep slug numbers under control.

In August the first melons will be ready (although in colder years these may be a little delayed), but it is now, at the peak of the gardening year, that some plants should be taken *out*. This is to make room for the next phase of planting in preparation for winter and the hungry gap.

As the outdoor summer comes to a close, the tunnel will be a great place to dry and cure onions. A suspended bench or shelf is ideal, as it is dry and genuinely mouse-free. Melons will be ripening and when cut (by the end of September) are likely to be the envy of neighbouring growers. The beds will now begin to empty in earnest, leaving space free for plantings for the hungry gap and quick-maturing catch crops for autumn and winter.

## Autumn (October to November)

As the growing season winds down and the remaining hot-weather crops are stripped out, the tunnel will suddenly look much more spacious and calm, and this is a golden opportunity for a general tidy-up. Any remaining tender plants, such as celery and fennel, that were grown outdoors may be heeled into the tunnel beds to prolong their usefulness, and will keep fresh that way for a couple of months.

Autumn can be an anxious time for tunnel gardeners, as variable weather will decide whether those vital hungry-gap plantings have been timed just right – established, but not too far along. Too warm, and the harvest may start while there is still plenty of stored produce; too cold, and you may be tempted to eat them young – and while this means they won't be available later, they will be so delicious that it's unlikely to be too much of a disappointment.

## Winter (December to early February)

As the days become shorter, activity in the polytunnel slows down for the winter and practically stops in the depths of the season. Some of the beds will be empty in preparation for sowing early in spring, some will have relatively hardy crops ready for harvest, and others will be full of established young plants that will grow away as the days lengthen, providing a great start to the gardening year.

In winter the polytunnel will have a dual role, as a 'holding area' for hungry-gap plantings established, but not yet fully grown, and as a walk-in larder for fresh produce through the winter. Your part in all this will simply be to prevent as much damage from frosts as possible by getting the moisture and ventilation levels just right, to protect plants that need it, and to watch for signs of fungal infection. In addition, even in mid-January the simple coat-and-sweater approach of having a cold frame or cloche within the tunnel will provide enough warmth to germinate lettuce, rocket, carrot, beetroot and a variety of other salad vegetables.

Provided you have chosen your plants and varieties sensibly, and especially if you put a fleece cloche in place for particularly hard frosts, your tunnel will shrug off even very cold weather with a minimum of damage, leaving you free to enjoy a much wider variety of fresh food through the winter than if you were growing in an outdoor garden alone. Don't be tempted to clear away slug-nibbled

leaves that you wouldn't put on a plate, as you might at other times of the year, because the plants will need every possible bit of leaf area to catch what little light there is. Now all that remains is to watch the faster-growing plants for the first signs of spring, when the whole cycle starts again.

## Planning your plants

Planning is important in any vegetable garden, but in the polytunnel, where you may be juggling summer harvests with plants for the winter and hungry gap, it is even more vital. Whether or not you decide to follow a formal rotation, rough plans of how you want your tunnel to look as the seasons progress will help you to make the most of your protected space. The tunnel may look big when it is empty, but as soon as you start to make full use of it you will almost certainly wish it was just a bit larger.

### Tip

#### Plan in terms of meals

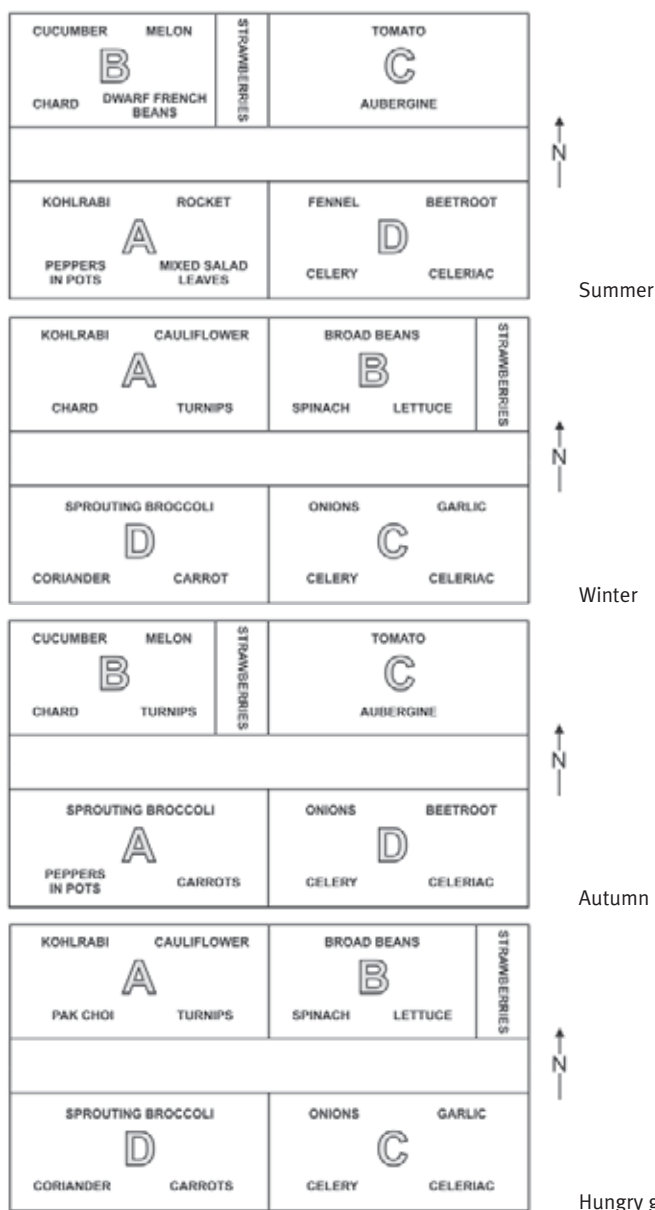
As outdoor gardeners we're all conditioned to think in terms of providing worthwhile amounts of whatever we plant. When you use a tunnel crop to supplement an outdoor one, however, the rules are slightly different. To help get yourself away from thinking in rows and half-rows, ask yourself how many actual meals the harvest has to provide and sow accordingly. If you're just extending the season by a few weeks, you may need only enough to provide a meal or two – just a square metre will be enough space for most crops.

Overleaf are four versions of the same simplified tunnel layout, one for each season, based on the sowing and harvesting times given in Chapter 8 and summarised in the chart on pages 63 and 64. In reality, of course, things are much more complex than these plans suggest. Quick crops are sown in gaps anywhere and everywhere, seedlings are planted under the canopy of larger plants soon to be removed, and pots on staging or shelving take things – literally – to a new level. You will notice that the layouts lead up to the next hungry gap, since this is the time of year that needs planning the furthest ahead, but nothing is written in stone: if your plans change, your sketches can too.

As well as the sowing and harvest times, it is important to remember the growth habit of the plant concerned. For example, cucumbers are tall and cast deep shade, so you should avoid putting them along the south side of a bed.

Don't be a slave to the idea of a perfect rotation (see Chapter 8, page 66). As you can see, the overwintering aspect of tunnel growing means that by the time a plant





matures it may be growing in the ‘wrong’ bed – but in fact this doesn’t matter. Just make sure that long-occupancy plants (most particularly the brassicas) are moved to new ground once a year, to avoid the build-up of soil pests such as club root. And above all, have fun! Experimentation is the essence of gardening, and there is nowhere you can grow that will give you more leeway than your polytunnel.

## CHAPTER TWO

# The tunnel's first year

The best time to put up a new tunnel is on a calm, sunny day in early spring, because the cover will be warm and flexible, letting you get a really tight fit (more on this overleaf). But the moment you finally put the cover on is a little strange, because all of a sudden the tunnel just appears, impossibly clean and somehow looking a lot larger than the uncovered frame did. The temperature inside rockets immediately, and before the doors are even on you begin to realise just what the word 'microclimate' really means.

If you have done your homework, the tunnel will be primed and ready to go, and you have the whole growing season ahead of you. You prepared the soil beds before your helpers arrived to put on the cover, you have a source of water no more than a few steps away, and there are trays of seedlings on a sunny windowsill somewhere, waiting to be moved into the tunnel. Within a few short weeks the place will be bursting with plants, and you'll be eating your first harvests before you know it.

The initial impact of moving to tunnel gardening is hard to overstate, and it catches you by surprise in unexpected ways. Take spring seedlings, for example. These can be brought out of the house much sooner than if you were planting outside. It's harder to thin them out as they grow because so few of them are weak, and you have to learn to be ruthless about it – and perhaps to sow fewer next time. This subtle learning curve continues throughout the year, and even things you may have read about – such as harvesting tomatoes in October – take a bit of getting used to.

There may be a few unpleasant surprises, such as the attention of local animals, and you'll have to work out how to deal with these too. But in many respects your first polytunnel season can be regarded as a 'golden' year. You will be using an absolutely clean tunnel, and if you are fortunate you will be working in brand-new beds, with no serious fertility issues or mineral shortages. You can expect few problems from pests and diseases, and all this is just as well – because you have a lot to learn.

## Why install in the spring?

When covering a tunnel it is important to get a really tight fit so that the cover lasts as long as possible. The polythene is at its most stretchy when it is warm, and installing in cold conditions would mean that everything would have to be re-tensioned in summer. Although this can be done easily enough, the fit is never quite as good as it might have been. For the best results, the tunnel cover should be as tight as a drum in its first year.

That rules out winter, and summer is simply too late to get your hot-weather plants started. It is tempting to consider an autumn installation, but this leaves little time to really get things going before winter sets in. Your polytunnel would just stand there, being battered by the elements while being comparatively unproductive. Given that a tunnel cover has to be replaced every five winters or so, this is just not worth it. So, wait until spring. Spend your winter getting ready for your first tunnel season, because there are quite a few things to do.

## Get the beds ready

As soon as the tunnel's hoops are in place, you can not only plan exactly where you want the beds to go, but you can actually go ahead and prepare them. It will be far easier to do this *before* the cover is in place because you can work from any angle, and because you can move things around in a wheelbarrow without having to negotiate the doorways.

Most of the work involved in actually putting the tunnel cover on happens outside the footprint of the structure, but some things need you to be inside, so care must be taken not to trample the new beds. Treading directly on the soil compacts it, excluding air and reducing drainage, and this presents a major challenge to plant growth. Any time you have to step on the beds, use a short plank or board to spread your weight. This limits the damage so that any affected areas can be quite easily fluffed up again with a fork after the tunnel is up.

From the moment the tunnel cover goes on, the soil in the tunnel beds is completely cut off from the outside and becomes totally dependent on you for food and water. To give you some idea of how seriously you should take this, think how quickly a grow bag dries out if you forget to water it, and how depleted the compost is at the end of the season. You will need to start a regimen of feeding and watering the soil from the very beginning, so start right away: gently fork a top dressing of compost into your new beds and water them before you plant anything. This gives everything a chance to settle and also gets the earthworms started, distributing organic matter throughout the soil and reversing any compaction from standing on the planks. Worms will do a lot of spadework for you, if you let them.

With luck your soil will start off in good health, but if you have used large amounts of commercial compost to make them it is possible that they may be

deficient in one or more minerals. If you see signs of unhealthy growth, particularly in 'indicator' plants such as tomatoes and cauliflowers, check the mineral deficiency list in Chapter 11, and take action if necessary.

Finally, if you dig your beds and then find that you can't get the cover on promptly, cover them with cardboard or black plastic and keep it wet or weighted down with stones. Seeds of pioneering species such as nettles and dandelions will find any bare soil very quickly, even in winter, and the last thing you want is for some of these weeds to get a toehold before the cover is even on.

## Start sowing

There is no need to wait until your tunnel is up to get a start on the season, and indeed you will be using a warm windowsill or propagator every year to do exactly that. Once you have planned your tunnel for the first year (see Chapter 1, page 15), go ahead and get the first sowings started in small pots or module trays that will fit easily on south-facing windowsills or, if it's warm enough, in a cold frame or two. That way, once your tunnel is up, turning it into a productive space will be much faster and easier.

How early you can do this really depends on what kind of conditions you can provide. The warmth and light you can give the seeds determines how fast they will germinate and grow, while conditions in the tunnel determine how soon they might be moved to your staging. If you started seeds indoors and they are becoming big enough to need potting on but the tunnel is not ready, transfer them to a cold frame so long as it's not too cold outside. This will slow their growth and give them time to acclimatise to a cooler environment. If you don't have a cold frame, it is easy and inexpensive to build one. Alternatively, commercially available cloches will work in a similar way. The important thing in both cases is to make sure that pests can't get in to eat the young plants. They will probably be the tastiest thing for miles, so you can expect them to be the focus of lots of unwanted attention.

The golden rule with seedlings is this: give them what they want. If you stunt their growth, or they get too leggy from light deprivation, they may never fully recover – so try to be realistic about what you can achieve. Even though it's tempting to plant tomatoes in January, few of us can really give them the support they need until the tunnel is ready to receive them in April. If disaster strikes, or you simply can't bring on the seedlings you need until the tunnel is already in place, then buy plants from a local nursery rather than starting late. With the polytunnel, everything is about timing.

Once your tunnel is up, you're ready to go. A polytunnel in spring is basically one huge cold frame. It's protected from the wind and heavy rain, the earth inside is warmer than in the beds outside, and it will get more light than any windowsill in the house. Once light levels pick up in mid-spring, it's an ideal place for seedlings

that are just getting going. If you can, hang some staging for them from the storm braces and crop bars, making sure it doesn't shade anything planted in the beds beneath.

## Tip

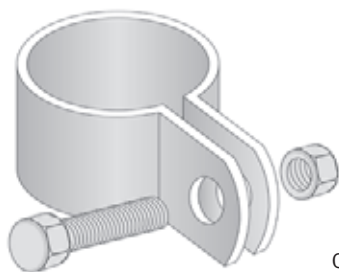
### Crop bars, S-hooks, clamps and Q-clips

One of the drawbacks of a polytunnel is that, compared with a greenhouse, there are very few points on the inside of the structure where you can attach strings and canes, or hang things such as thermometers and tools. Crop bars, usually sold as optional extras with polytunnel kits, do more than add to the structural strength of the tunnel; they are also an invaluable means of hanging and securing everything from shelving to growing strings (see page 51).

Once the polytunnel has been assembled and covered, it is too late to add most additional clips and clamps, but you can still carefully drill self-tapping screws into the metalwork of the hoops, provided they do not have to hold much weight. *If using a drill on the metalwork of a covered tunnel, always exercise extreme caution. A cross shape of insulation tape over the drilling point will help to stop the drill bit from slipping, but even so, make sure you have a roll of polythene repair tape before you start.*

A safer option is the simple S-hook, inexpensive and available from any hardware shop. S-hooks are great for hanging things from the crop bars, and since they are not fixed they can be moved around as they are needed. Half a dozen of these handy hooks is a must for any tunnel – for hoses, tools and even your coat when it's cold outside.

You can also use ordinary spring clamps on tubing anywhere in the tunnel, but unless the springs are extremely strong, they have a habit of moving when it is least convenient. When you need something that's rock solid, get yourself a few Q-clips. These ring-shaped clips can be pushed on to any piece of tubing that isn't in contact with the tunnel cover, such as crop bars, storm braces and the lower parts of the ground tubes, and slid to where they are needed before tightening the securing bolt, which makes them rock solid. Once again, they are not expensive – although you may need to buy them from a polytunnel supplier such as First Tunnels (see Resources section), which allows easy ordering of small sundries like Q-clips and self-tapping screws. Make sure you buy the correct size, as crop bars sometimes have a smaller diameter than the tunnel frame.



Q-clip

## Using grow lights

If you plan on installing a tunnel very early in the year, you might also want to consider starting a few seeds under lights, as daylight levels indoors will be too low and it's still too cold to put things out in a cloche or cold frame. Grow lights are also useful for plants that need a longer growing season, particularly if you live in the north of Britain.

A 200W fluorescent light designed for vegetative growth (rather than a flowering or dual-purpose type) will put out plenty of light, and enough warmth for seedlings to feel quite pampered in an area the size of a standard propagator. Fluorescents use less energy than incandescent or halogen lights of the same brightness, and a single bulb should last for years. LED grow lights are newcomers to the market and are much more efficient, but do not produce heat. They are also more expensive to buy and to replace when they fail, as the individual lamps cannot at present be replaced.

## Keeping up

Unless you have grown vegetables in a warmer climate, growth in the tunnel will be faster than anything you have encountered before. Some plants, such as cucumbers and tomatoes, need training every few days to stop them falling off their supports, and it's not only plants that grow fast: you must be alert for the first signs of infestations by pests such as aphids, which can turn from a single colony to a widespread problem in little more than a week. Happily, the climate in the tunnel makes all of this pleasant work, even when it's raining hard outside. Your trips to the tunnel will quickly become a favourite part of your daily routine.

### Tip

#### Keeping your notes in the tunnel

As you gain experience at making the most of every scrap of space, you'll find yourself making adjustments to your planting scheme. Unless you're really disciplined about writing things down when you get back to the house, it's just too easy to lose track of when a particular patch of plants went in. The only real remedy for this is to have your tunnel plans and planting notes to hand.

The best way to have all these things where you need them is to attach a pencil to a clipboard with a length of string. Put the plans on the clipboard, in a clear-fronted plastic wallet (to protect them from splashes), and hang the whole thing from a nail in the shelving or staging, or on an S-hook on the crop bars. Use a pencil rather than a pen because inks of all kinds will eventually fade in sunlight, leaving you trying to decipher the faint scratches that are left.



## What about ventilation?

Most polytunnels rely on nothing more complicated for ventilation than opening the doors at either end, although more sophisticated options, such as ridge vents and ventilation skirts, are available. Ventilation is vital because it is your only method of controlling heat in the polytunnel, and also the only method of reducing humidity. If the tunnel stays humid for long, the plants are at increased risk of attack from moulds and other fungi.

Except in freezing weather, you should open at least one end of the tunnel as soon as possible after dawn, and close it again at least an hour before sunset. In sunny conditions, it is important to leave the doors at both ends open to allow a through draught.

## What about water?

As polytunnels are unaffected by rainfall, having an adequate watering schedule is crucial to healthy plant growth. Especially in the first year, it's important to monitor the condition of the beds constantly so that you get a really good idea of plant requirements. Until you get the hang of it, a moisture meter is invaluable.

Naturally, how much water you need to give, and how often, depends on what sort of soil your beds contain. Light, sandy soils hold water poorly and should be watered twice a day during warm weather. Fail to do this and you are very likely to damage or even lose the harvest. Perversely, heavy clay soils can actually be more difficult to manage. In cool, cloudy weather they need watering only once every few days, but just a day or two of sunshine dries out the surface layer; there is still plenty of water deeper in the earth, but many food plants have shallow root systems and depend on moist conditions close to the surface. Lettuce, for example, suffers sooner than most and its leaves don't have to wilt very far before they completely lose the ability to come back. Stressed plants bolt, which is a natural survival tactic so that the species continues even if the individual plant dies, and for many crops bolting means the end of the harvest.

However often you need to water, it can take a big chunk out of your day. If the idea of spending a great deal of time hand watering everything doesn't really appeal to you, take heart – there are several different options available.

Automatic systems start with a battery-operated timer connected to the mains water supply, or to a reservoir with some header space to provide pressure. The water is then directed through a branching hose system to where it's needed. Even if you normally activate the system by hand, if you are going away in the middle of the summer, make sure you are familiar with using the timer before you go. Then you will be able to leave with confidence, knowing everything is going to be fine back home while you're lying on a beach somewhere.

The most basic means of delivering water to the polytunnel plants is the soaker hose: a length of porous pipe that is laid on or just beneath the surface of the beds and allows water to escape along its entire length. This is an inexpensive way to water large areas deeply, but is somewhat inexact and difficult to fine-tune. You have to keep a constant eye on moisture levels in the beds, and also spot-water thirstier plants by hand. Some degree of top watering is also always needed, to prevent the surface layers of the soil from turning to dust.

The best automatic watering systems use rigid pipe connected to a soaker hose and various other micro-watering elements, which irrigate specific areas or even individual plants. This means that you must take care not to underestimate the amount of water a particular plant needs, or it will suffer. Several companies manufacture attachments for this kind of system: Hozelock, Gardena and Claber are all worth a look. Most retailers are very happy to work out what you will need, if you explain your garden set-up. The following are some of the other attachments you might come across.

### **Micro-jet**

This is a sprayer mounted on a rigid spike that lifts it above the soil surface. The spray covers a set angle and distance (included in the supplier's description), and everything inside this area will get soaked.

### **Micro-mister**

This is a light, upright spray that is ideal for delicate plants and seedlings. Because micro-misters put out such a fine mist they are poor options for anywhere subject to even a light breeze, and are therefore ideal for enclosed spaces such as greenhouses and polytunnels.

### **Drippers**

Drippers are pushed into the earth at the base of small plants. Try to get the adjustable variety. They deliver water to the plant at a specific rate, without wetting the leaves in the process.

### **Multiple-outlet connectors**

If the water supply needs to be split into more than one branch, you may need a multiple-outlet tap connector. This can connect either directly to a tap or to the end of the mains supply pipe, and allows the water to be divided between more than one outlet. Some units also have an electronic timer option.

## **Pests**

While we mention pest problems for specific plants in Chapter 8 ('Plants for the polytunnel'), there are some general preventative measures you can take that will help deal with common problems.

## Rabbits

Rabbits are a problem in rural areas but are unlikely to be encountered in an urban environment. If you do have rabbits around, you can be sure that if you leave the polytunnel open while you're away (or if you forget to close it one evening), they are extremely likely to pay it a visit. Once they know there's a source of food available, you'll have to fight for your share.

The answer to this problem is to stop them from discovering what's inside the tunnel in the first place. It's easy enough to create a sturdy barrier that you can stretch across the inside of the tunnel doorway using some wire netting held into place with short pieces of batten – see Chapter 10, page 168, for more details. This kind of barrier will also deter most dogs.

## Cats

Polytunnels are comfortable and warm, and it doesn't take cats long to figure out that they make a good place for a quiet daytime nap. Usually they don't do very much damage, but if they decide to use the beds as a toilet, you will have to exclude them, and they can also cause damage if they are accidentally closed in at night. We also heard from one tunnel owner whose dog spotted a cat inside her tunnel, and went straight through the side of the cover to chase it.

Cats are agile and difficult to physically exclude without building a full-height inner door covered with mesh (which also works for butterflies), but they dislike walking on chopped trimmings from holly or gorse. These can be scattered just inside the doors, and last for two or three years before eventually rotting down.

## Caterpillars

Here's the dilemma: do you leave the tunnel open enough to allow bees to get in? If pollination by insects needs to be encouraged, butterflies will get in too. And if you have brassicas growing in the tunnel, that's where they will lay their eggs.

Once you have a caterpillar problem it's extremely difficult to deal with, especially on plants such as cauliflowers. The leaves are brittle and even before the flowerhead has started to develop, they turn inwards to protect it. That, of course, is where the caterpillars like to live too. The leaves are young and tender, and predators can't get at them easily. Trying carefully to pull leaves back usually results in tears and breaks, and rarely results in actually finding any caterpillars. When disturbed, they tend to release their grip on the plant and fall to the bottom of the leaf stem, where they are not only difficult to see but almost impossible to get hold of.

You can easily exclude butterflies from the tunnel by hanging netting across the doorways (thus still allowing air to circulate), but this also excludes many pollinators (see Chapter 6, page 53). The solution is to cover crops at risk (mainly

brassicas) with light fleece, making sure that it goes right down to the ground on all sides. The plants will still get enough light to grow, although they may be delayed a little – but at least you'll be the one getting the harvest.

## At the end of the summer

A polytunnel adds roughly four weeks of productive growing to each end of the season. This is one of the main reasons to have one, but it also leads to an annual dilemma:

- Should summer plants be pulled out now, on the basis that the harvest can't continue for much longer, because you need the space for winter crops?
- Or should they stay because the thought of being able to pick fresh courgettes, green peppers, aubergines and tomatoes as late as possible is just too good to miss?

This is one of the choices you will need to make each and every year. Gardening is a constant challenge, and presents an abundance of opportunities to learn from your successes and your failures alike – and come what may, we can all be sure to have plenty of both. So don't be discouraged by failure: learn from it. And don't be carried away by success: eat some of it, and give the rest away.

## CHAPTER THREE

# Winter

Winter is a time for maintenance and planning rather than lots of sowing, planting and harvesting. All the summer crops have long since finished and most of the outside beds will either be under green manure or lying fallow until spring.

During the coldest months of the year the growth of plants in the tunnel slows to a crawl, turning it into a big, green, walk-in larder – and that’s wonderful for anyone who wants to know that their food is coming from a trustworthy source. However, you definitely need to provide a helping hand because of the challenge of lower light levels and shorter days. Heavy and extended periods of frost are always a risk.

The polytunnel gardener has to protect all tender crops from extreme temperatures, while still making sure that they get as much light as possible and are always adequately ventilated.

This last factor is especially important and probably requires the most care and attention on a daily basis. Ignore it at your peril, or you could find yourself dealing with more mould, which can easily strike otherwise green and healthy-looking plants, than at any other time of the year. On days when the outside temperature is not forecast to rise above freezing, open the doors at both ends of the tunnel for five minutes in the early morning to let trapped cold air flow out, and then close them again. On warmer days do likewise, but leave at least one end of the tunnel open until an hour before sunset.

Of course, at the same time you have to deal with pests. Many small animals no longer hibernate during our winters as, despite the overnight frosts that we all get from time to time, it doesn’t usually get really cold for long enough to make it necessary for them to do so. Accordingly, they may be out and about looking for food right through the year. All of them will see your tunnel as a protected, comparatively warm space with dinner available 24/7, so you have to be careful when providing ventilation – or you will find that it’s not only air that is being encouraged to circulate through the tunnel.

One of the great benefits of a polytunnel over a greenhouse is the larger footprint on which the structure stands. Being a much cheaper proposition, the average polytunnel tends to be quite a bit bigger than the average greenhouse and covers

more ground. This absorbs and stores heat during the day, and while a polythene cover does not insulate as well as glass, a large polytunnel will stay warmer at night than a small greenhouse. It is this heat retention that makes it possible to grow food right through the year in a polytunnel.



2 January 2010: a severe cold snap with snow – but despite this bleak appearance, later that day the temperature in the tunnel was 24°C.

### Mark says:

“On 20 December 2009 the temperature outside my polytunnel in Wales at 1pm was 3°C – whereas inside the tunnel it was a whopping 20°C. At midday on 9 January 2010 the outside temperature was -14°C, while in the tunnel it was a balmy 18°C. However, polytunnels need sunlight to warm up, so on a cloudy day the temperature inside will be very much lower.”

Tender plants in a polytunnel will almost certainly need some additional protection during winter, since frosty weather will still affect them, though not nearly as much as it affects plants outside. Don't make the mistake of thinking that just because you have a polytunnel you can grow anything you like for Christmas, because even if you are one of the very lucky residents of the UK who lives in an area that doesn't normally get frosts, this just isn't the case. Most of our summer crops depend on long, bright days as well as warm temperatures, so no matter where you live in the



UK, you won't see ripening tomatoes hanging on healthy, vigorous vines in a polytunnel during the winter – there just isn't enough heat or light available.

Nevertheless, it's very tempting to try to keep at least one variety of summer crop going as long as possible into the winter, and courgettes, cucumbers and peppers are likely contenders. Even in severe temperatures, a fleece cloche can protect such crops for much longer than they would otherwise survive, and might allow you to continue to harvest the final fruits as late as December. Storage options can stretch the period for eating fresh produce too: cucumbers, for example, can be stored for many weeks if wrapped in cling film and simply left in a cool place rather than put in the fridge, where they will quickly deteriorate. This can mean fresh cucumber on Christmas day and perhaps beyond. So, while they are normally considered a summer crop, you can be enjoying cucumbers for six or seven months a year. For the UK, that's amazing.

While peppers aren't likely to grow after the end of November, they should remain fresh on the plants and therefore won't need to be stored elsewhere. With the additional protection of a horticultural fleece, lettuce, pak choi, radish, Chinese cabbage, celery, rocket, mustard greens and chard will all be unaffected by the frosts. Even though the latter part of December and the early part of January are usually the coldest times of the year, these crops should all be growing visibly, though slowly. If you plant enough of them, they will last into the spring and even beyond into the 'hungry gap'.

## Watering

Very little water is needed during the winter, but with the automatic irrigation drained down to prevent damage from freezing, you will be surprised at how long you spend going to and fro with watering cans, particularly in February. Be careful to get as little water as possible on the foliage, where it could cause damage if it freezes. Watering is best done as soon as temperatures in the tunnel rise above freezing, to give any accidental splashes as long as possible to dry. In extended periods of freezing weather no watering at all is needed.

## Frost protection

By December, any broad beans or winter peas in the tunnel will probably be too tall to cover with fleece, but the good news is that they won't normally need it. While they will tend to droop badly after a heavy frost, provided you give them some support to stop their stems from bending right over, they will usually, except in particularly vicious periods of extended frost, be able to 're-inflate' and carry on. Likewise, while peas are natural climbers, frost will make them slacken their grip and unwind. So for this reason too it's important to make sure that the upper parts of pea plants are tied into place throughout the coldest weather.

## Horticultural fleece

See Chapter 7, page 59, for details on constructing a fleece cloche.

If you made a fleece cloche back in November, you'll be reaping the benefits now. If you didn't, it's not too late to make one: January and February are the coldest months in the UK, and that's when your plants will really need help.

Some plants – chard, for example – may be too large to cover easily with a fleece cloche. In this case, just drape some fleece over the leaves. There may be frost burn at points of contact, but the rest of the plant will be protected. Chard is quite hardy, but long periods of severe frost will kill or severely set back unprotected plants. If you use fleece to restrict the damage to contact points on a few leaves, you can continue to have fresh chard any time you want. As soon as the weather warms again the plant will continue to grow – so with a tunnel to help it through the winter and early spring, chard becomes an 'all year round' plant, as, unlike many crops, the flavour doesn't change as the plant bolts and flowers.

## Cold frames

Cold frames are useful inside a polytunnel in the winter in much the same way as they are in the outside garden in early spring. Whatever the surrounding temperature, a properly made cold frame will be a little warmer on the inside, so a cold frame in the tunnel is a great place to start seeds towards the end of winter.

## Compost

Making compost generates warmth, and in principle a compost heap can be used to heat a polytunnel. However, the process of composting breaks down vegetable matter, releasing mould spores that can sometimes attack struggling plants. For more information on composting, see Chapter 11, page 175, and the Resources section.

## Jobs for winter

### Clear up debris

Try to pick up plant debris as soon as you see it. Mould can be a real problem at this time of year, because of the damp weather. Also, woodlice, slugs and other pests will be very happy sheltering under leaves or in small piles of rotting plant matter. Natural predators such as toads are probably hibernating some of the time, and if they're not around, it's up to you.

Slugs lay eggs in the earth around food plants, or in moist spots under leaves. If you find a clutch, use a trowel or spade to remove them along with their surrounding soil. The eggs are laid in clusters of between ten and fifty, and look like small white or translucent pearls.

**Tip****Collecting rubbish**

Tunnel gardening inevitably produces small amounts of waste, such as seed packets, bark chips or twigs from compost, pulled weed seedlings and so on. Rather than stuffing these into a pocket or leaving them in a corner, keep an empty plant pot on the shelf or staging to drop these scraps into, and replace it with a fresh one every time you tap a plant out of its pot.

**Clean everything else**

The relative calm of winter makes it a good time to clean your tools, trays and anything else stored in the tunnel with a biodegradable organic detergent such as Citrox or Armillatox (which is also an insecticide), so that they are ready for spring. Check that any copper tape used for door frames, plant rings or the like as part of your slug defences is clean and bright, because it becomes much less effective as it tarnishes. Glass paper works well for this and doesn't leave tiny bits of debris around, which can be a problem if you use wire wool. (For more details see Chapter 10, page 171.)

**Repair any holes**

Check the cover for damage periodically. The cold of winter, combined with generally harsh weather and gusting wind, means that the cover is at its most brittle and vulnerable. The door frames of a tunnel are where the cover usually begins to go first, so keep an eye on them in particular. At the first sign of a split, apply polytunnel repair tape to both sides of the film. Tape won't stick to the cover if it is dirty or damp, so make sure the surfaces are absolutely clean and dry beforehand.

**Start collecting compostable pots**

Depending on your attitude towards biodegradable pots (see Chapter 4, page 35), it may be time to start collecting the inner tubes from toilet and kitchen rolls. These are useful for avoiding transplant shock for seedlings such as peas and sweetcorn. Sowing into pots rather than direct into soil beds can – sometimes – spare the seeds from the attention of rodents by allowing you to start them on a suspended shelf or other mouse-proof location.

**December**

The winter solstice on 21 or 22 December is the shortest day of the year, so the polytunnel and the plants inside it receive the least energy from the sun. Growth in the tunnel is slow to nonexistent, making this the perfect time to relax indoors with your seed catalogues, planning next year's garden. When it comes to the tunnel, it's a good idea to make a plan for each season (such as those in Chapter 1,

page 16), running right up to the hungry gap for the following year so that everything gets started in good time. This will be your last chance to eat some of the marginally hardy crops still left in the soil beds, as the coming hard frosts will probably finish them off despite the protection of a fleece.

### **What to sow**

Coriander.

### **What to harvest**

Beetroot, cabbage, carrots, cauliflower, celeriac, celery (becoming poor towards the end of month), chard, coriander, daikon, fennel, kohlrabi, lettuce, pak choi, peppers, potatoes, radishes, rocket, spinach, spring onions, turnips.

## **January**

With day length not increasing appreciably just yet, and temperatures markedly lower than those in December, the polytunnel grinds to a virtual halt. This is where all your planning for winter pays off, since the polytunnel functions as a walk-in larder, holding crops in good condition even while no growth occurs. Even though there is very little light, try to air the plants by removing their fleece except on the rare days when the polytunnel stays frozen inside.

### **What to sow**

Broad beans, coriander, peas, spinach.

### **What to harvest**

Beetroot, cabbage, carrot, cauliflower, celeriac, celery, chard, coriander, daikon, kohlrabi, lettuce, pak choi, radishes, rocket, spinach, spring onions, turnips.

## **February**

It is still horribly cold outside, but the second week in February – usually the coldest period of the year – also has a good chance of bringing some clear skies, and it is towards the end of this month that you will notice the first signs of new growth despite the continuing frosts. It is time to roll up your sleeves and get sowing in propagators and on sunny windowsills, because the difference in the tunnel over the next couple of months is going to be nothing short of miraculous.

### **Chitting seed potatoes**

The first 'new' potatoes are one of the most awaited harvests of the year. If you plant a few in the tunnel in February, you could be eating them towards the end of April – far sooner than if they'd been grown outside. For many people, potatoes aren't an obvious crop for the polytunnel, but they only take up one square foot (30cm x 30cm) each and are out of the way well before you need the space for summer plants such as tomatoes and melons. Do give them a try.

If you have already ordered some ‘first early’ potatoes, which reach maturity faster than other types, they should arrive near the beginning of the month. Place them rose end up (the ‘rose’ is a cluster of sprouting points or ‘eyes’) in egg boxes, which are perfect for the job, in a well-lit, frost-free place such as a cool windowsill. This makes them sprout or ‘chit’, giving the foliage an early start, and a week or so spent chitting is worth two or three weeks in the ground, bringing your first harvest that little bit closer.

Some gardeners break off all but the best chit, but since this is in order to produce fewer, larger potatoes, there seems little point in doing it for first earlies, which are often eaten small and with the skin still on. Whatever you decide to do, it’s certainly worth rubbing off any chits that sprout from the wrong end of the tuber. Chits are brittle and easy to break, so be gentle with any you want to keep.

### **What to sow**

Aubergines, broad beans, cabbage, carrots, cauliflower, celeriac, celery, chard, coriander, garlic and elephant garlic, kohlrabi, lettuce, peas, peppers, potatoes, radishes, rocket, spinach, spring onions, strawberries, sweet potatoes, tomatoes, turnips.

### **What to harvest**

Beetroot, cabbage, carrots, cauliflower, celeriac, celery, chard, coriander, daikon, kohlrabi, lettuce, pak choi, radishes, rocket, spinach, spring onions, turnips.





Mark's polytunnel, June 2009. In this picture, the right side of the tunnel faces south, so tall plants are grown on the left (i.e. north) side.





Lettuces, January 2010 – still fine, despite the severe temperatures outside.



A January turnip ('Snowball') that was direct-sown the previous September.



Small, compact members of the brassica family, kohlrabi are an ideal overwintering crop in a polytunnel.





Tatsoi, a very hardy member of the pak choi family. This one provided tasty leaves from November until April.



Radishes can fill a gap anywhere and are ready to pick after only a few weeks.



There's nothing particularly unusual about a picture of a tomato flower . . . except that this one was taken in mid-March.



The violet ground beetle, an active predator of many garden pests. Seeing one in your polytunnel, especially in early spring, is good news.





Suspended staging, complete with early April seedlings, made from part of a chicken house. The wire mesh allows some light though to the plants beneath.



Basil can be started in April in a polytunnel.



Strawberry flowers in early April: a sign of things to come.



Strawberries fruiting a full month before the plants outside.



Not many of these made it as far as the kitchen . . .



A 'strawberry gutter', suspended from the crop bars. These 'day neutral' strawberries will fruit until November.





Keeping leaves picked in early spring delays bolting in many vegetables, such as this celeriac.



Copper tape, placed around door frames, will prevent slugs getting in. If tarnished, it can be brightened with a drop of vinegar and a brisk scrub, then rinsed.



Flowering beans add a welcome touch of colour to the polytunnel spring . . .



. . . as do flowering peas – in this case, 'Weggiser'.





Rain at the wrong time can make elephant garlic bulbs start growing again, spoiling the harvest. In a tunnel, you control the water.



Early potatoes, ready to eat in late April.



Round-seeded peas are much hardier than wrinkled varieties and, given the shelter of a polytunnel, will usually live through the winter – and provide a harvest in April.





Broad beans too will overwinter in the polytunnel, providing an early crop the following spring.



## Growing strings



1. Put the looped end of the string in the planting hole.  
Photograph: Connor McKee.



2. Carefully place the seedling on top of the loop and firm in. Photograph: Connor McKee.



Any plant that will eventually require support is a good candidate for the growing-string method. Tomato (left) and watermelon (right) are just two examples.





If you want to save seeds from carrots, you need enough plants to keep the genes strong (see page 155).



The tunnel acts as a huge cold frame for seedlings that will eventually be planted outside, such as these leeks.





These cauliflowers will need the protection of a light fleece covering from July to September, to keep egg-laying butterflies away.



Fennel is supposed to be sown direct to avoid transplant shock, which can cause early bolting. We've never had a problem and instead sow it in modules. This picture was taken in late May.



This hanging shelf is just the right size for anything growing in a 5-litre pot, such as these chilli peppers, photographed in July 2009.

## CHAPTER FOUR

# Spring

## Recognising tunnel spring

Polytunnel spring tends to creep up on new tunnel gardeners, largely because it begins to happen before things really get going outside. By the middle of February the days are already 90 minutes longer than at midwinter, and they're getting brighter too. Even though it's still perishing outside, the polytunnel soil is warming steadily, so don't get caught out. By the time the first snowdrops appear, growth in the tunnel will already have started and you'll be bringing your first indoor and propagator sowings out into the tunnel in no time.

### Tip

#### Quarantining new plants

When you bring any plant into the garden from outside, there is always a risk of introducing disease. To be as sure as possible about the health of incoming plants, it is a good idea to quarantine them in a greenhouse or cold frame, or on a sunny windowsill, for a couple of weeks. Take them into the polytunnel only once you are sure they are healthy.

Despite the increasing warmth inside the polytunnel, however, it is very easy to let your guard down too soon, lulled into a false sense of security by a few days of sunny weather. Cold snaps can still strike, so don't put away the fleece just yet: keep it to hand in the tunnel and watch the weather like a hawk. When the first seedlings come out on to the staging they will need some protection too. Make sure that you open the tunnel as early in the day as you can, to let the cold night air out, and close things up at least an hour before sunset to retain as much heat as possible.

As the soil temperature increases you'll notice a real difference in how quickly the surface dries out, especially if you are growing in sandy soil. Once the inside of the tunnel warms up properly, the amount of water needed increases quite dramatically and the young growth inside is very vulnerable to dryness. Even if it doesn't get to the point of wilting, a lot of it will bolt. Although it's tempting to hook up any automatic irrigation early, be aware that a single savage frost could do some real damage. A burst pipe in the tunnel can be absolutely heartbreaking.



## Jobs for spring

### Watch out for visitors

Even though slug activity doesn't get really bad until the weather warms up towards early May, beware of slugs hiding in bolting plants. They will go for the sappy growth and extra cover, often before you are aware they are even active. 'Slug patrol' (see page 44) relentlessly for two or three evenings at a time – a method regarded as being so effective that organic producers use it in the field.

#### Tip

##### Removing slug slime from fingers

If you don't mind touching slugs, using an ungloved hand is the most effective way of removing them from the plants and soil. Naturally this leaves your fingers coated in sticky slug slime, but trying to wash it off is a big mistake as it just absorbs water and becomes even harder to remove. If you're not ready to stop gardening to clean your hands, just rub your fingers together with a pinch of soil to take the tackiness away. Once indoors, use a little butter to loosen the slime before washing it off with soap and water.

Make sure you deal promptly with ants too, or you will have aphid farms on your crops once the weather is warm enough. Ants can sometimes be persuaded to move by flooding the nest repeatedly with cold water, but they seldom go far. Another option is to offer them bait of the mineral borax mixed with some diluted honey (sold commercially as Nippon), which they should take back to the nest, killing the whole colony. This trick works best in spring and early summer when the colony is at its hungriest.

### The seasonal rush

Spring is a very busy time for seed sowing, and the staging and propagators soon fill up with trays of modules, pots and associated paraphernalia, all of which you should have cleaned with fungicidal detergent during the winter. By early summer you should be feeling justifiably proud of all the luscious young plants sitting there, poised and ready for action, so pat yourself on the back – but remember that the bench should be just as busy again in the early autumn if the tunnel is going to feed you through the winter and hungry gap.

Nor is the activity limited to tunnel crops: at this time of the year the polytunnel is an ideal place to give lots of outdoor plants an early start, and healthy young plants in modules will put the outside garden weeks ahead of outdoor sowings.

## Tip

### Keeping track of your plants

If you decide to buy white plastic seed markers, the good news is that they will last for years. Write on them only with a soft pencil, otherwise your writing will last for years as well. To erase the lettering, rub it with your finger and a few drops of muddy water. It will come straight off. If you're erasing the lettering from several of them at the same time, wear a glove, or you'll rub your finger raw in the process.

To make your own seed markers, cut vertical strips out of the side of a plastic yoghurt pot and give them a point at one end.

## Building fertility

You should be just as concerned about building and maintaining soil fertility in the polytunnel as you are in the wider garden, if not more so. In an ideal world your polytunnel beds would be miraculously empty for a good top dressing some time in May, but if you are getting the most out of your tunnel the beds are never empty for very long – and certainly not all at the same time. As growing spaces become free, apply a top dressing any time from mid-April onwards. You can gently fork it in to the top 7cm of soil or leave it on the surface, depending on what you plan to plant next, but deeper digging damages the soil structure and should be done only very occasionally, or to remedy the formation of a hardpan layer. Make sure that you water the surface enough to keep it slightly moist, as this encourages worms to pull the dressing down into the soil for you.

What to choose as a soil dressing depends on the type and condition of your soil. To build nutrient levels, use organic compost or manure. These will also help to condition the earth and increase both aeration and water retention. Potting compost is usually low in nutrients (seedlings don't require much in the way of feeding until they are more developed) but should also contain enough composted vegetable matter to help to build good soil. Until you establish a routine, it is a good idea to invest in a soil testing kit, which can give you values for nitrogen, phosphorus, potassium and acidity (pH) so that you can watch how they change from year to year. See Chapter 11 for further information.

## Biodegradable pots

When sowing seeds of plants that do not like having their roots disturbed, such as cucumbers and melons, it is really handy to be able to pop the whole thing, pot and all, into the ground. Pots made from peat are no longer recommended since peat extraction destroys irreplaceable wildlife habitat, and they are finally beginning to disappear from the shelves of responsible retailers. Although you can buy a more expensive version made from coir, it is easy enough to make your own.



The simplest form of biodegradable pot has to be the inner tubes from unbleached toilet and kitchen rolls. Provided you start collecting them early enough in the year and keep them somewhere dry to prevent them unwrapping, these are adequate for most needs and provide enough depth to give even peas and beans a good start. Thinner tubes have a tendency to sag or tumble over time, but if you see this starting to happen, just tie them loosely together with string. So long as you pack the tubes closely into a seed tray and tamp the bottom layer of compost down well with your fingers, there is no need to make a base for them. By the time you come to plant them the roots of the seedling will hold the compost together, if you handle them gently.

If you need slightly larger biodegradable pots, they are easy enough to make with newspaper and an absolutely straight-sided plastic drinking glass or something similar (see box opposite). Don't use real glass as it's likely to break and could cause serious injury. Once you get used to it, these pots take about a minute each to make and children love to help.

### **Mark says:**

"While the practice of bleaching paper with chlorine has been almost completely replaced by an oxygenating process, the paper itself can be from a variety of sources and is often pulped using chemicals that you would not want in your garden. Either way, the actual source of the material cannot be ascertained. So, while we might hope that it was pulped mechanically and that the paper was from a reasonably good source, it might just as easily contain heavy metal-based inks and have been bleached using chlorine compounds.

If you feel unsure about introducing paper into your garden, organic coir (coconut husk) pots are a good alternative. Coir is a renewable by-product of the food industry, although it has to be shipped from the tropics and so its use cannot be regarded as truly sustainable. Transport costs make coir pots more expensive than toilet rolls or newspaper, but until a truly organic domestic recycled paper product becomes available, they are probably the best option if you want to be certain."

In use, biodegradable pots tend to go mouldy after a couple of weeks. This is not a problem for the plants, as the moulds you see specialise in rotting down dead plant material and not live tissue. Once the pots are planted these organisms quickly get to work, and within a few weeks only the rim of the pot will remain.

### **Cleaning the cover**

Even though the day length is increasing, light levels are still very low at this time of year, and anything you can do to help will be appreciated by your plants. This makes it absolutely mandatory to clean the outside of the polythene cover

as soon as plant growth begins, to remove algae that have grown on it over the winter. You can find simple instructions for doing this on our website, Farm In My Pocket – see Resources section.

## Making paper pots

Start with a double-page sheet of tabloid newspaper. Close it so that only one page is visible, then fold it in half lengthways, making four thicknesses of paper. You should now have a folded piece measuring about 15cm by 35cm. Place the drinking glass down on the newspaper so that the open end of the glass is 5cm away from the folded edge of the paper (Figure 1).

Roll the paper firmly around the glass to make a tube, then tuck the 5cm of free paper up into the glass all the way round (Figure 2). Don't be too neat about it – the folds should stick out a bit.

Pull the glass out of the paper roll, and then push it gently back in the other way round (bottom end first, as in Figure 3). When it meets the tucks, push it more firmly against the ground to form the base of the pot.

Finally, take the glass out and make the top edge of the pot by folding a 2cm lip over into the inside of the tube (Figure 4).



If your tunnel is only one year old, you may not think it is dirty enough to warrant the effort involved, but wiping just a small section on the north side will show you how big a difference a good clean will make. Be careful you don't damage the cover when cleaning it, particularly when it becomes more brittle towards the end of its life. If you get the chance, do it on a sunny day as the higher temperatures inside the tunnel will make the cover more flexible and therefore less prone to damage.

Even a clean polythene cover does not transmit quite as much light as glass. At other times of the year this is insignificant, but in early spring seedlings appreciate every scrap of light they can get. If you have a small greenhouse, use it; if not, you might consider making yourself a cold frame where you can bring on seedlings that don't need heat for those first tentative weeks, as they will do slightly better there. By the middle of March this difference disappears with increasing light intensity.

Early spring is also the best time to give the interior of your tunnel a really good clean. Wipe down the inside of the cover and all the exposed metalwork with a sponge and a plant-safe detergent. We recommend Citrox for this job because it is organic and breaks down harmlessly in the soil (which is vitally important because there is no rain to wash it away). It also retards algal growth and inactivates many of the fungal spores that will have adhered to the polythene during the autumn and winter, ready to be carried down on to vulnerable new growth by drops of condensation.

## March

March, traditionally a month of unpredictable weather, shouldn't bother the tunnel a bit. Outside it may be wet, windy and generally unpleasant, but inside the tunnel spring will most definitely be in the air. It will be warmer, calmer and a very nice place for gardening. At some point towards the end of the month growth in the tunnel suddenly takes off and you realise that it's warm enough to bring most of your early sowings out from their warm windowsills. But remember to watch the weather and provide protection from any sharp frosts.

This is also the time to start off the next wave of sowings. Put up some staging in the tunnel so that new seedlings are out of reach of pests, and position it so that the beds beneath are not shaded. If this will be a problem, making the staging from wire mesh fastened to a wood batten frame, rather than a board of solid planks, will allow most of the light through.

March is a good month to bring a chair into the polytunnel, and with all that activity you're going to need it. Position it close to some staging or a handy table – then you'll have somewhere to put your tea while you relax!

## Tip

### Suspended staging and shelves

An area of staging is essential for any greenhouse or polytunnel, giving you a horizontal surface at a comfortable height for seedlings, potted plants or a capillary bed (see Chapter 6, page 49). Some tunnel suppliers offer polytunnel staging kits, which have legs at the front but are secured by Q-clips at the back (see diagram on page 20), making them a little easier to defend from pests by smearing the legs with fruit tree grease, which not even slugs are keen to cross. This is handy, given the carnage that even one slug can cause if it manages to sneak up and hide in the folds underneath a tray of modules.

For a truly pest-free working area, though, you can't beat suspended staging. You can make this easily by covering a wooden frame with stout mesh and suspending it from the tunnel frame or crop bars (see picture in first colour section). Unless you pack it absolutely solid with trays, the mesh lets enough light through for plants beneath to get some sun, and it's easily removed when it's not needed. Suspended staging needs to be hung independently from each corner to avoid rocking, and the corners at the back should be cushioned with piping insulation and duct tape or similar, in case you accidentally shove it against the polythene cover.

A highly useful variation of this theme is the suspended shelf, which is simply a thick plank or board suspended in the same manner. Suspended shelves are too narrow to work on but make an excellent place to put container-grown plants up out of the way, where they receive the best possible light without appreciably shading plants beneath. A suspended shelf at chest height gets approximately 5°C warmer than the rest of the polytunnel on still, sunny days, so is only suitable for heat-loving plants, and greater attention needs to be given to watering them. If you are not able to lift a watering can up to this height, consider using a spiral hose set or lift the pots down for watering. See the colour sections for examples of a hanging shelf.

## Tip

### Hanging gloves

To stop gloves from becoming lost or separated, drill a small hole in one end of a clothes peg and hang it from a handy nail in the shelf or staging. When you finish with your gloves, dust them off and use the clothes peg to clip them together at the cuff. A few clothes pegs hung in this way will invariably end up being useful for other small items as well.

## What to sow

Aubergines, broccoli (sprouting), cabbage, carrots, cauliflower, celeriac, celery, chard, coriander, fennel, kohlrabi, lettuce, radishes, rocket, spinach, spring onions, strawberries, tomatoes.

## What to harvest

Beetroot, broccoli (sprouting), cabbage, carrots, cauliflower, celeriac, celery, chard, coriander, daikon, kohlrabi, lettuce, pak choi, radishes, rocket, spinach, spring onions, turnips.

## April

For gardeners April has always been a month for dodging showers as the outdoor beds get going, but tunnel gardeners don't have to stop work because of a sudden downpour. Rather than tackling all those oh-so-urgent polytunnel jobs at the start of the day, make a start on your outdoor tasks first; if it rains you can retreat to the tunnel and do your work there piecemeal, returning outdoors as soon as the rain stops.

### Andy says:

"The inside of a polytunnel is spectacularly noisy when it rains, and being in a balmy tunnel fiddling around with seeds and trays of young plants while it hammers down outside is definitely one of my favourite things."

Lots of seed varieties can be sown direct into the polytunnel's soil beds in April as well as in modules, but for some the soil temperature is critical. The rate at which the soil warms up mostly depends on how much sunshine there has been, although you can speed it up a bit by covering the soil with black plastic or fabric. Until you develop the knack of judging things for yourself, invest in a soil thermometer. These are inexpensive and should last for years.

## What to sow

Broccoli (sprouting), cabbage, carrots, cauliflower, chard, coriander, courgettes, cucumbers, dwarf French and French beans, fennel, kohlrabi, lettuce, melon and watermelon, radishes, rocket, spinach, spring onions, strawberries.

## What to harvest

Broad beans, broccoli (sprouting), cabbage, carrot, cauliflower, celeriac, celery, chard, coriander, kohlrabi, lettuce, peas, radishes, rocket, spinach, spring onions, strawberries, turnips.

# The hungry gap

The ‘hungry gap’ occurs between the end of March (when stored fresh produce deteriorates) and the start of June (when the earliest broad beans are ready). During this period the outdoor garden cannot produce a wide variety of food as there simply hasn’t been enough time for it to have matured since the winter frosts. So if you aim to eat as much home-grown food as possible, the hungry gap is where you either fall off the wagon or have a really, really boring diet. Thanks to modern storage techniques, the hungry gap is no longer the dangerous period of food shortage that it once was, but imported shop-bought food should always be a last resort – particularly if it is unseasonal. Organic or not, who really wants string beans grown 5,000km away in soil starved of minerals, and refrigerated for weeks?

A polytunnel can shrink or even banish the hungry gap in several ways. Firstly, it can bring early crops (such as broad beans) forward. Secondly, a large covered area allows hardier crops (such as celeriac) to overwinter in much better condition than outside. And finally, a polytunnel makes it possible to harvest a variety of produce (such as salad leaves, carrots and kohlrabi) all year round.

## Timing is everything

The British Isles sits in an area of confluence between Arctic, Tropical and Polar air masses, with continental and maritime varieties of each. This area wobbles back and forth, depending on the relative strengths of each of these contributing elements, giving us our typical British Weather: fronts, depressions and rain. On the plus side we very rarely see extremes of weather, although climate change models suggest that these are likely to become more frequent in future.

Statistically speaking, we can be fairly certain that for much of the British Isles there is very little light available to plants from December to February, but the weather in the months straddling this period is extremely hard to predict, and this makes the timing of crops for the hungry gap something of a black art. However, there are a few things you can do to give yourself a head start – see box overleaf.

## Tips on planting times

1. Start your tunnel planning by looking at the hungry gap crops, then plan everything else around them. That might sound draconian, but you'll thank us for it in April.
2. Keep meticulous records. What worked last year may not work this year, but being able to look back over a number of years will give you a much better idea of the correct planting time for a 'normal year'. Note that the microclimate in your tunnel is highly individual and depends on a host of factors, such as the angle of the tunnel to the wind and sun as well as shelter and shading (this is covered in detail in *The Polytunnel Handbook*), so what works for you will not necessarily work so well for your neighbour.
3. Choose your varieties carefully. Faster-maturing varieties tend to be more predictable.
4. Consider less traditional vegetables. Kohlrabi may not be a mainstream choice but it can be sown every few weeks from February to October, and although it slows right down during the winter, it doesn't stop growing. Pea and bean shoots grown directly in the soil beds are also excellent as a salad crop.
5. Making smaller sowings in succession gives you a better chance of having a harvest ready just when you need it.

### Andy says:

"Looking at past years, the best time to sow overwintering peas for an April harvest in my polytunnel in Dorset is the second week in September, but an Indian summer or a cold, dull spring can easily change that. Instead, I usually make room for two slightly smaller plantings at the end of August and towards the end of September, and unless April itself is disastrous I can be sure of a harvest – not so sweet as the outdoor crop at the end of May, but just as welcome."

### Mark says:

"Many plants will overwinter into the hungry gap and others can be started off indoors in the very early spring, and between them they will add loads of variety to your diet through April and May. My particular overwintering favourite is chard, because as it bolts the leaves become smaller and smaller, and have such a delicate flavour they can even be added to salads and sandwiches. You also get enough seeds to last for years!"

## Using microclimates

Once you have planted your seeds it is tempting to think that there is nothing more to be done except hope, but this is not really true. If cold weather strikes in autumn while your seedlings are struggling to get going, bring them indoors to a sunny windowsill, either until it gets warmer or until they grow those vital first few leaves. There is nothing wrong with keeping them indoors for longer periods, so long as they get enough light.

Even established plants in the soil beds can be persuaded to alter their harvest times a little. If the spring is cold and growth is poor, plants that are normally grown without protection can be given a boost by covering them with a layer of fleece during the night and removing it in the morning. Conversely, in a warm spring plants can get ahead of themselves. If so, shading them with a double layer of fleece from mid-morning to early evening will restrict the amount of light they receive, thus slowing them down – although you have to watch for signs of legginess, particularly if conditions are dull. Reduce watering just a little too.

## Bolt city

As the sunlight strengthens in March, growth picks up surprisingly quickly – and before you know what's happening, many plants bolt. With experience you will learn to recognise the signs, adjust your picking accordingly *and* have replacement plants waiting in the wings. For salad plants such as lettuce, which turn bitter as they bolt, the most important response is regular picking to restrict the amount of leaf, and hence the amount of energy the plant has to work with. There is a need to be ruthless here – a bed of ten lettuces that gave you just enough salad in February will give you far more than you need in March. When this happens, remove a few plants so that the ones that are left will give you just enough salad from regular pickings. Don't let things get out of hand, or the whole lot will bolt.

Once turnips begin to bolt they quickly become woody and inedible, but not all bolting crops are a write-off, so don't rip everything out the moment it begins to run away from you. Some plants, such as chard and perpetual spinach, remain good to eat until they have produced seeds, and some, such as coriander and parsley, become more intense in flavour. Even those that become too bitter or peppery, such as mizuna, can still be useful, since you can force it to produce multiple side-shoots by cutting the main stem back to 5cm; the foliage is still too strong for most people, but the nutty-flavoured flowers make a striking addition to spring salads.



**Mark says:**

“If you have a plant that resists bolting until long after the others, it’s well worth considering trying to save seed from it, as long as it’s a good, healthy plant that didn’t get picked too heavily. The plants you grow from these seeds will be even more resistant to bolting, and in this way you can gradually select for characteristics that will help your garden to improve every year. This process – saving seed or rooting a cutting from a plant that has different but very useful characteristics – is exactly what gave us the thornless blackberry.”

## Slug patrol

From late April through to the end of May a regular ‘slug patrol’ will help to keep the numbers down for the entire year. Take a torch and walk slowly through the tunnel after dark, picking off any slugs you see. While the numbers will be higher directly after wet weather, you should soon see a marked difference in the total you collect.

## Sowing plants for the hungry gap

To help you plan for future years, the following is a very brief list of plants suited to growing for the hungry gap, along with suggested sowing dates. More information on each plant can be found in Chapter 8.

### Beetroot

Beetroot will happily overwinter in a tunnel from module sowings in July and August, and can be harvested until it bolts, usually towards the end of March. The leaves are also very good, but there won’t be many of them once the roots have developed; you can delay bolting by picking them.

### Broad beans

Overwintering broad beans sown in October or November will give you a very early harvest, but don’t be tempted to sow them too early. Ideally you want them to be no more than 30cm high when growth stops for the winter, so that they are ready to make the most of the light when it returns in the spring. If you don’t manage to sow them in autumn, start some off in modules on a sunny windowsill from January onwards and plant them as soon as they have a few true leaves. If you are sowing in modules from the end of February, use a spring-sown variety as they are faster-growing and usually have more flavour.

### Broccoli, sprouting

A traditional outdoor hungry-gap plant, sprouting broccoli spends less time in the ground in the tunnel than plants grown outside, and the spears are much less

prone to pest and weather damage. Plants sown in succession from mid-August to the end of September should ensure a hungry-gap harvest.

## Cabbage

Sown around the middle of September, an early sweetheart variety such as ‘Précoce de Louviers’ will give you a hungry-gap harvest without the long growing time of outdoor crops. Sow in succession to be sure of having plants ready when you need them.

## Carrot

If you make a new sowing every time the last sowing develops its first true leaves, your tunnel should never be without a row of baby carrots. For the hungry gap, an August sowing should give you mature carrots by the beginning of April, although a few may become woody and bolt.

## Cauliflower

As with cabbage, with the right varieties and enough bed space you can grow cauliflower outside for any time of year. Plants grown in the tunnel tend to do better because of the extra protection, and a fast-maturing variety such as Igloo will do all year round. Sowings made in succession from August to mid-September should provide large, flawless curds without the risk of damage from birds.

## Celery

Although overwintered celery looks pretty sorry for itself in the depths of winter, provided you protect it with fleece it will begin to grow again by the end of February. By April some plants may have begun to bolt, but by picking regularly to stop too much leaf developing you can turn celery into a delicious and unexpected part of your spring diet.

## Celeriac

Celeriac takes up bed space for quite a long time, but the bigger roots you get in the tunnel and the ease with which they overwinter make them worth it. Pick some leaves in spring to delay bolting, and use them in soups and stews for a rich celery-like flavour.

## Chard

Chard will overwinter even in an outside bed, but needs protection to live through severe frosts. It's a great vegetable to give some overwintering tunnel room to, as it will still provide a harvest when the outside plants have completely stopped growing. For best results, sow any time from February to April. It will bolt in April or May of the following year, but the leaves remain sweet and tasty. Small leaves can be eaten raw in salads and sandwiches, but larger ones are best treated as a cooked vegetable.

Spring-sown seed won't grow into plants big enough to harvest until mid-June, so if you can keep some going over winter you will have chard available for over ten months of the year, and possibly even all year round.

## **Coriander**

Given some protection to see it through any really heavy frosts, coriander sown in September will be at its best in the hungry gap. Start some replacement plants on a sunny windowsill in February or March.

## **Kohlrabi**

Autumn plantings will grow extremely slowly through the winter, but will begin to fatten up in early February. They can be picked at any stage once the bulb begins to grow, but don't let them get too old or they'll become woody. Sow indoors in modules every two weeks from February for a continuous harvest beginning in April.

## **Lettuce**

Early spring sowings will be ready to pick using a 'cut and come again' approach by early May. Overwintering plants will begin to grow rapidly in March and must be picked regularly to delay bolting for as long as possible.

## **Onions, bulbing**

Provided you can protect them from slugs, early overwintering ('Japanese') onions sown during the previous summer can be ripened early by folding the tops down around the start of May. If this strikes you as too space-hungry a system, sow a few long rows of spring onions instead.

## **Onions, spring**

Fully hardy, spring onions have two big advantages over their bulbing cousins: they take up very little room and they stand for a long time without changing very much. For delicate stems to use in salads in the hungry gap, sow in September; for bigger stems, sow as early as midsummer.

## **Pak choi**

Early February sowings of pak choi will be big enough to harvest from late April onwards.

## **Peas**

If overwintering ('round' seed) varieties such as 'Douce Provence' are planted in October of the previous year, they will begin producing in April. For something even earlier, look for a round-seeded winter 'snow pea' – then you don't even have to wait for the peas to develop inside the pods before you can eat them.

## Potatoes

Plant ‘first earlies’ in mid-February for an initial harvest in late April, which then continues through May. Potatoes are very prone to frost damage, and as they are also large plants it’s not easy to keep them happy through a British winter without *plenty* of protection.

## Radishes

Radishes grow astonishingly quickly, and February sowings will probably have already been picked by the time the hungry gap arrives. Keep sowing radish every few weeks throughout the season for a steady supply.

## Rocket

Rocket can be sown in autumn for use over winter, and although these plants will bolt by early April, they can continue to provide a useful crop (see Chapter 8, page 128). For younger plants in the hungry gap, make a first sowing in February.

## Spinach

If planted the previous September, spinach will overwinter and be ready to pick from March onwards. It is wonderfully versatile as it can be used either as a cooked green or raw in salads.

## Strawberries

First early strawberries established by the end of the previous summer can begin fruiting as early as April in sheltered areas, but for most of us May is a more realistic prospect. Make sure that you encourage bees into the tunnel by using some attractive blossom around the tunnel ends, or pollinate the plants by hand as soon as the first flowers appear (see Chapter 8, page 136).

## Turnips

Sown in February, turnips will provide a very welcome crop in April and May.

## CHAPTER SIX

# Summer

Early summer is probably the most rewarding time of year for the gardener. At the start, there's nothing much being harvested unless you planned for the hungry gap beforehand. A month later, not only are the seedlings from spring sowings set out in beds, but you may also have started courgettes, cucumbers, melons, sweetcorn and climbing beans – true warm-season crops. And, slowly at first, the harvests start coming. At this time of year a hammock or easy chair, either in the tunnel or out of it, is a really good idea. After all, what's the good of all this work if you can't sit back and appreciate it?

## Don't crowd

Everything happens at full speed in polytunnel summer: the air is suddenly filled with insects flying everywhere, what was a lettuce yesterday is trying to be a small tree today, and space is getting tight. Most gardeners start far more seeds than they can hope to grow. The idea is that only the best are planted, but it's always tempting to squeeze things together a bit to make room for just one more.

In a word, don't. Crowded growth cuts down on air circulation, resulting in little pockets of damp foliage where moulds will certainly take hold eventually. Pruning and harvesting without accidentally damaging neighbouring plants becomes near-impossible and, if that's not enough, growth will be held back by competition for light and nutrients. There could also be colonies of pests hidden deep among the leaves, but if things are crowded you're far less likely to see them before things get serious.

So, while you *can* plant things somewhat closer together in a tunnel because of its climate and the greater control you have over nutrient and water levels, be very careful. It's all too easy to take things too far.

## Air and water

The tunnel can get staggeringly hot during sunny summer days, with temperatures regularly above 40°C. Most plants cope extremely well with these extremes, but only if they have moisture around the roots and good ventilation. Leaving the doors shut throughout the hottest part of the day can be catastrophic. Surface watering either by hand or with a soaker hose is best done in the evenings, so long

as you have the slug situation under control – if not, water in the morning instead. In warm weather, make sure that the doors at both ends of the tunnel are opened as early after dawn as possible so that air can circulate freely through the tunnel. As usual, close them again an hour before sunset to retain as much trapped heat as possible. This is especially important when you are growing tomatoes, as they dislike fluctuations in temperature, which can cause problems with the developing fruit.

Never underestimate how much water the tunnel will need during summer, and check water levels frequently using a moisture meter or by digging a small test hole with a trowel in the middle of a bed. Areas with big, thirsty plants will need more water than those with small plants or a moisture-retaining mulch. On a hot, dry day a fully grown tomato plant can use two litres of water for transpiration.

Naturally, this level of demand means that you have to pay close attention to the water supply in your tunnel. Water rationing could spell disaster in no time at all unless you have a contingency plan, although hosepipe bans usually still allow a hose to be used to fill watering cans.

## Water security

All polytunnel owners, whether on mains water or not, need to have a backup supply in case their usual supply of water fails. At the very least you should have a few large water butts very close to the tunnel, and keep them topped up with fresh water at all times in summer. We recommend the use of a self-adhesive product called ‘tunnel gutter’ (made by Northern Polytunnels but widely available through retailers) to harvest rainwater falling on the tunnel and direct it into water butts positioned at the corners. The butts are best placed at the north side of the tunnel to avoid shading the interior, and can be linked together near the bottom using a butt-linking kit.

Plants in pots, modules and other containers pose special problems in hot weather, as once the compost starts to shrink away from the sides of the container it can be difficult to re-wet it. A 20-minute soak in a watering tray will work, but a more elegant and time-saving solution is to make a capillary bed on a bench or shelf. This is made up of a sheet of capillary matting covered with microporous membrane, often sold with it, linked by a wick to a reservoir of water. Provided the reservoir is kept full of water (preferably rainwater, to prevent the wick from clogging up with deposited lime), the matting will stay wet, and pots placed on top of it and watered in will stay moist indefinitely.

To prevent minerals from concentrating on the soil surface over time, plants that spend a long time on the capillary bed should be taken off once a week, allowed to dry out a little, and surface-watered before replacing them on the matting. Capillary beds do not work for pots taller than 15cm: you need micro-irrigation for this, which is available from good gardening suppliers as well as some specialist companies (see Chapter 2, page 23).

## The ruthless grower

It's difficult to think about winter when it's so balmy in the tunnel. After all, how can frosts be on the horizon when the cucumbers are growing so fast that you need to train them three times a week? But if you're serious about getting the most out of your polytunnel, there's more to it than full beds under a sunny sky. If you want your walk-in larder to have food in it over the winter and into the hungry gap, you need to be working towards this by the second half of the summer.

Should you fail to do this, one day in October it will finally be time to take all the summer growth out, and your tunnel will suddenly look very empty indeed. The garden centres will be no help at all, unless you fancy some winter pansies, as they sold the last of their vegetable seedlings months ago. This is why, almost as soon as you've finished planting your spring sowings, you should start filling the staging with seedlings again. If you get it right, the staging will be just as full in September as it was in April.

Sadly, your winter harvests come at a price. Space must be made for them in late summer, and this means taking out some plants that are probably doing perfectly well. While this is a sacrifice, you can minimise it by carefully planning your tunnel's whole year in advance, rather than staggering from one season to the next, wishing you had a little more space. The following are a few tricks that might help.

### Using modules

Most winter plants are suitable for module sowing, and can be potted up once or twice if their space is not ready in time.

### Clearing away ground-level growth

Tomatoes, cucumbers and similarly tall plants can create serious shading at soil level, but they don't have to. Cutting away all leaves to a height of 30cm around the middle of August won't seriously affect their energy levels, but it can make a big difference to small plants struggling to get started beneath them.

### Growing summer plants in pots

Consider putting some summer plants, such as peppers, in large pots instead of directly into the soil bed so that they can be moved as the situation demands.

### Undersowing

Some small-seeded plants, such as lettuces and carrots, spend some time resting after germination, and if light levels are poor they can stay like this for several weeks. You can take advantage of this by sowing their seeds under the canopy of an existing plant, resulting in tiny seedlings in standby mode. Once the growth shading them is cut away they're ready to go, but this works only if they survive



## Tip

### Growing strings

Avoid bringing bamboo canes into the polytunnel as much as possible, simply because when you're dealing with long ones it's difficult to keep track of both ends at once. The most dangerous time is when you pull them back out of the ground when you are finished with them, because then they jab upwards, and once you've heard the distinctive 'pop!' of the other end of a cane going through the tunnel roof you're much less likely to use them again. Thankfully, growing plants up strings is an easy and reusable alternative to provide support for tall plants such as tomatoes, cucumbers and melons.

The first thing to provide is a horizontal support wire running as high as possible above the bed. This has to be something that stretches as little as possible, otherwise it will sag. Although thick garden wire will do at a pinch, plastic-sleeved wires can slip out of knots and the weight of two or three melon plants should not be underestimated. Thick galvanised wire is much less likely to fail at a crucial moment.

Run the support wire along the length of the bed, passing it over each crop bar. Loop one end around a suitable attachment point, such as a Q-clip or an angled nail driven into the door frame, and pull the wire as taught as possible before securing the other end in a similar manner. If you wish, a barrel strainer (available from good hardware stores) can be used on the wire to get it really taut, but this is probably unnecessary.

Next, use strong polypropylene twine to make the growing strings (natural products such as sisal are less suitable because they will rot before the season is finished). Tie the loose end of the twine to the support wire above the planting hole and lower the rest to the ground, but do not cut it. Beginning at the top, tie the twine to provide a small loop every 20cm along the length, and a final larger loop that will be 7cm or so under the ground. Cut the twine just past this loop.

When you plant something that needs the support of a string, place the final loop in the bottom of the planting hole and put the root ball of the young plant on top of it, then proceed as normal. (This is illustrated in the first colour section.) Avoid disturbing the string for a couple of weeks, but as the plant establishes itself the roots will secure it in the ground very firmly. The plant can be gently twisted around the string as it grows, and you can use ordinary twine to secure it to a loop at any point. Make sure that you do this every 50cm or so by the time the fruit begins to develop. The loops are also handy for attaching string bags to support melons or particularly heavy trusses of tomatoes.

When it is time to remove the plants, take them apart in sections, working from the bottom up, snipping the attachments from each loop in turn. This prevents the plant from suddenly losing support and collapsing on to neighbouring crops. Once done, the growing string can be pulled out of the ground and wiped with a clean rag before being rolled up and secured to the support wire with a clothes peg.

Note that the support wire does not need to be directly above the bed, as the plants will happily grow up the strings even if they are at quite an angle. The growing strings, however, will always slide along the support wire to find the lowest point that their length will allow.

for long enough. The soil must not be allowed to dry out and, even if slug levels in the tunnel are very low, seedlings may still need additional protection.

## Underplanting

Shade-tolerant plants, such as coriander and daikon, will grow quite happily provided that they are not in deep shadow, and so are suitable for planting around the base of tall plants such as melons. By the time the days are getting short the melons will have been taken out, and the underplanted crops will be very grateful for any remaining sunshine.

## Holidays

Leaving a polytunnel at the height of the growing season is a test of nerves, but until there is a radical overhaul of the timing of school holidays many of us will continue to be forced to do exactly that. An outdoor garden can be left for a week or even two, and, with the exception of peas and beans, will probably survive reasonably well as long as it rains once or twice. Not so the polytunnel.

If you leave the tunnel, you will probably want to try to arrange for a neighbour to keep an eye on things while you're away, and this can lead to problems. Be clear about just how much work it involves, and be especially clear about your attitude to chemicals, including slug pellets. It's extremely important to discuss the organic nature of a garden, in terms of what's OK to do and what is definitely not OK to do, with anyone who is going to help you take care of it.

Shortly before you leave, spend two weeks writing down exactly what you do in the tunnel each day – the list will surprise you. Having someone with food-growing experience to look after things is obviously desirable, but even if you manage this you should simplify the chores as much as you possibly can.

On light soil, just one hot day spent without water will seriously stress most of the plants in a tunnel, and may well kill some of them. Watering is time-consuming, and if your caretaker spends more time doing it than they would like, they're less likely to do other things. If you don't have an automatic watering system (see page 22), think seriously about installing one. Make a capillary bed too (see page 49). Put the pots on it, water them in, and stress the importance of *never* allowing the reservoir to run dry.

So keep things simple, write it all down – and don't forget to bring back a nice present.

## Flying insects

The tunnel may seem like an isolated bubble, but in summer you will notice that it gets a lot of visitors in the form of birds, insects, toads and so on. Your attitude to this will probably change from season to season and from year to year, depending on what you are growing. Growing brassicas when there are lots of butterflies around is an invitation to heartbreak; yet without bees, strawberries do not fruit so well. There are several options for excluding flying visitors, such as fleecing or netting particular plants, or making mesh covers for the doors.

### Tip

#### Pollinators or brassicas?

If you need insects to pollinate plants in the tunnel, grow a few flowers. Calendulas, marigolds and dependable perennials such as dahlias attract all sorts of pollinators and look good too. But if you grow brassicas you may wish to screen off the doors of your polytunnel with mesh to keep butterflies out. So which is it to be – pollinators or brassicas?

Netting curtains or screens using 7mm mesh at the doors will ensure that bigger creatures such as birds and butterflies can't get in, while hoverflies – important eaters of aphids that are attracted to calendula and marigold – still can. However, this also means that bees, the most important group of pollinating insects, cannot. Please note that butterflies often manage to get through larger meshes, even though the holes may look far too small for them. Unless you use 7mm mesh or finer, crops such as brassicas may have to be fleeced for their protection.

The downside of using 7mm netting rather than a finer mesh at the doors is that while hoverflies may be able to get in, a great many won't be able to find their way out again and may perish as a result.

## May

The eggs of any slugs that evaded you earlier in the year should have hatched by now, so starting a 'slug patrol' is a good idea. Try to do this with a torch after dark each evening, as that's when they are out and about, especially on warm, humid nights. Slug patrols will be needed until the end of the month and possibly beyond, depending on your circumstances. A combination of slug patrol and the prompt clearing of potential slug habitat is the best way to control their numbers.

Once things really warm up you will be kept very busy training and pruning, so again think seriously about fitting an automatic watering system (see page 22). These don't have to be expensive: a clockwork timer fitted to an outside tap with a length of soaker hose will do the bulk of your irrigation for you, freeing up vital time for 'proper gardening'.

### **What to sow**

Broccoli (sprouting), cabbage, carrots, cauliflower, coriander, courgettes, cucumbers, daikon, fennel, kohlrabi, lettuce, melon and watermelon, radishes, rocket, spinach, spring onions, sweetcorn.

### **What to harvest**

Broad beans, broccoli (sprouting), cabbage, carrots, cauliflower, chard, coriander, kohlrabi, lettuce, onions, pak choi, peas, radishes, rocket, spinach, spring onions, strawberries, turnips.

## **June**

By now the garden outside will be getting busy, and growth in the tunnel is nearing its peak. Daily attention and watering is vital, and unless you are gardening on heavy soil this may be necessary twice a day in hot weather: once in the morning and once again as things begin to cool down, but early enough for the plants to dry, as plants that stay wet overnight are more susceptible to moulds and slug attack. Pay particular attention to plants with shallow root systems, which are most vulnerable to surface drying. Damping down (watering the paths and staging to increase humidity) is not usually necessary, provided that the plants themselves are well watered.

### **What to sow**

Cabbage, carrots, cauliflower, coriander, daikon, fennel, kohlrabi, lettuce, pak choi, radishes, rocket, spring onions.

### **What to harvest**

Aubergines, broad beans, broccoli (sprouting), cabbage, carrots, cauliflower, celery, chard, coriander, courgettes, cucumbers, dwarf French and French beans, garlic and elephant garlic, kohlrabi, lettuce, onions, pak choi, radishes, rocket, spinach, spring onions, strawberries, tomatoes (late in the month).

## **July**

This is the month in which you should not only plan your winter, spring and hungry-gap plants but also start sowing the first few seeds. It's easy to be lulled into thinking that there's plenty of time – after all, summer is at its peak. It's warm, the days are long and the garden is a lovely place to just sit around enjoying the view. Nevertheless, your staging should start filling up again now as you raise your seedlings for overwintering plants. Seed trays and modules dry out extremely quickly in summer, and apart from watering them frequently, all you can do to alleviate this is cover them with a propagator lid and offer them some shade. Alternatively, start them indoors, where they may be easier to care for until they're big enough to go outside.

## What to sow

Beetroot, cabbage, carrots, cauliflower, coriander, daikon, fennel, kohlrabi, lettuce, onions, pak choi, radishes, rocket, spring onions, strawberries, turnips.

## What to harvest

Aubergines, broccoli (sprouting), cabbage, carrots, cauliflower, celery, chard, coriander, courgettes, cucumbers, daikon, dwarf French and French beans, fennel, garlic and elephant garlic, kohlrabi, lettuce, onions, pak choi, peppers, radishes, rocket, spinach, spring onions, strawberries, sweetcorn, tomatoes.

# August

Most plants intended for overwintering should be sown by late August, except in very sheltered spots. Any later and they won't have time to grow large enough to establish themselves over winter before growth comes to a halt. August can be a riot of growth in the tunnel, but make sure you keep it all under control to allow adequate air flow through and around the plants, otherwise you may run into problems with moulds.

## What to sow

Beetroot, broccoli (sprouting), cabbage, carrots, cauliflower, coriander, daikon, kohlrabi, lettuce, onions, pak choi, peas, radishes, rocket, spring onions, strawberries, sweet potatoes, turnips.

## What to harvest

Aubergines, cabbage, carrots, cauliflower, celery, chard, coriander, courgettes, cucumbers, daikon, dwarf French and French beans, fennel, kohlrabi, lettuce, melon and watermelon, peppers, radishes, rocket, spinach, spring onions, strawberries, sweetcorn, tomatoes.

# September

With the exception of some very fast-growing plants, such as mizuna, all your winter sowings should be done by now. Plunging night-time temperatures put an end to heat-loving plants such as basil, just as cool-weather crops come into their own. Mid-September is the time for final decisions about which plants will stay to the last and which will get pulled out to make space for winter.

As summer comes to a close, the shortening days lower the temperature and slow down growth in the polytunnel. The amount of water that the plants need decreases as well, so be warned – it is easy to miss this if you have an automatic watering system. Be ready to lower the settings rather than risk waterlogged soil and rotting stems.

## **What to sow**

Broccoli (sprouting), cabbage, cauliflower, coriander, daikon, kohlrabi, lettuce, peas, potatoes, radishes, rocket, spring onions, strawberries.

## **What to harvest**

Aubergines, cabbage, carrots, cauliflower, celeriac, celery, chard, coriander, courgettes, cucumbers, daikon, dwarf French and French beans, fennel, kohlrabi, lettuce, melon and watermelon, pak choi, peppers, radishes, rocket, spinach, spring onions, strawberries, sweetcorn, sweet potatoes, tomatoes.



## CHAPTER SEVEN

# Autumn

As the hours of daylight slowly decrease, the remaining summer plants gradually creak to a halt. Remove them whenever their spaces are needed, or whenever the harvest is finished. Any climbers that were planted close to the cover on the north side of the tunnel can be safely left with smaller crops planted in front of them, but a sprawling courgette plant that is taking up a big chunk of bed is a good candidate for removal, even if it is still providing a couple of courgettes a week. By the end of October no further ripening to speak of will happen, and plants remaining from the summer should be looked on as a storage option rather than a harvest. Cucumbers and peppers, for example, will be fine on their plants until the end of November in most parts of the country.

As the last of the summer plants are removed the polytunnel can look stark and rather sad, but it shouldn't stay that way for long. Crops that were sown or planted in the shade of earlier crops will soon take advantage of the extra light, and module-sown seedlings can fill the gaps.

You have to think ahead in the tunnel, and the later in the year it gets, the more true that becomes. Plants for overwintering must do most of their growing by mid-October, and a long spell of cool, dull weather in early autumn can spell disaster if your winter sowings were made too late. On the other hand, if the autumn is unseasonably warm and bright, it is worth making some extra sowings in case your earlier ones grow too quickly. Our unique weather system usually makes it impossible to know what the weather has in store more than a few days in advance, but the small amounts of seed needed for extra sowings will not cost much.

As the nights get colder it becomes more important to retain the heat captured by the tunnel during the day, so make sure that you close the doors an hour before sunset on sunny days and even earlier if it's overcast. This is particularly important for tomatoes and melons, which may still be struggling to ripen their last fruits. Watch them carefully for early signs of rot, particularly in humid weather, and remove dead leaves before they have the chance to become mouldy. Opening the doors again as soon after dawn as possible, and leaving them open all day, will also help to prevent this.

You can find out a great deal about your climate – what you can sow and when; harvesting seasons and winter planting times – from your own notes. These will

prove to be invaluable, as next year you won't be able to remember exact times, conditions and so on. The UK is full of little climate pockets that differ from their surrounding areas, and if you're in one of them, whether warm or cold, the right timings can be quite different from those recommended on seed packets. And that's important, as the challenges of gardening are constant.

## Treating fungal diseases

For early treatment of mildew and other fungi, make up a spray of 10g of bicarbonate of soda (baking soda) in one litre of water, with a few drops of plant-based washing-up liquid (such as Ecover) or plant-safe detergent (Citrox) to encourage the liquid to stick to the foliage. Always spray in the morning so that the liquid dries quickly, making sure that you treat the undersides of the leaves as well as the tops. This can be repeated weekly as needed (twice-weekly if you use overhead irrigation), but should not be used as a routine preventative measure because of the risk of salt building up in the soil.

Treated plants and fruits tend to look dusty when the spray dries, so harvest any ripe fruit before you start. Always spray a small area of one plant before treating the whole crop to check that it will be tolerated, unless you have successfully used it on that variety before.

## A fleece cloche

There will probably be lots of frost-sensitive plants in your polytunnel when the first frost arrives. If you're lucky, this first blast of winter weather will just be a warning, but if not, it may kill plants you wanted to keep for another month or so. Horticultural fleece can help to protect an entire bed from several degrees of frost, depending on the weight of fleece you use (light fleece, 15g, is good for up to -3°C; heavier fleeces, 30g, up to -6°C) but it is not without problems.

Even heavy fleece is supposed to cut light by only 6 per cent, but this measurement is based on a perfectly clean and flat sheet of it, held exactly perpendicular to the light source. In practice the loss of light is probably substantially greater. So, while fleece will save your plants from destruction by frost, if you just put it up and leave it in place for days on end you will probably get leggy growth caused by reduced light levels, and you will also be restricting the flow of air – so you'll be very likely to get mould problems too.

The ideal fleece protection provides a single layer of covering, held reasonably flat, which touches the plants as little as possible so as to minimise contact frost burn. A fleece cloche – see box opposite – provides this and is easily adjustable, so if the sun comes out and warms the tunnel, you can pull the fleece back, allowing more light and air circulation without damaging things in the process.

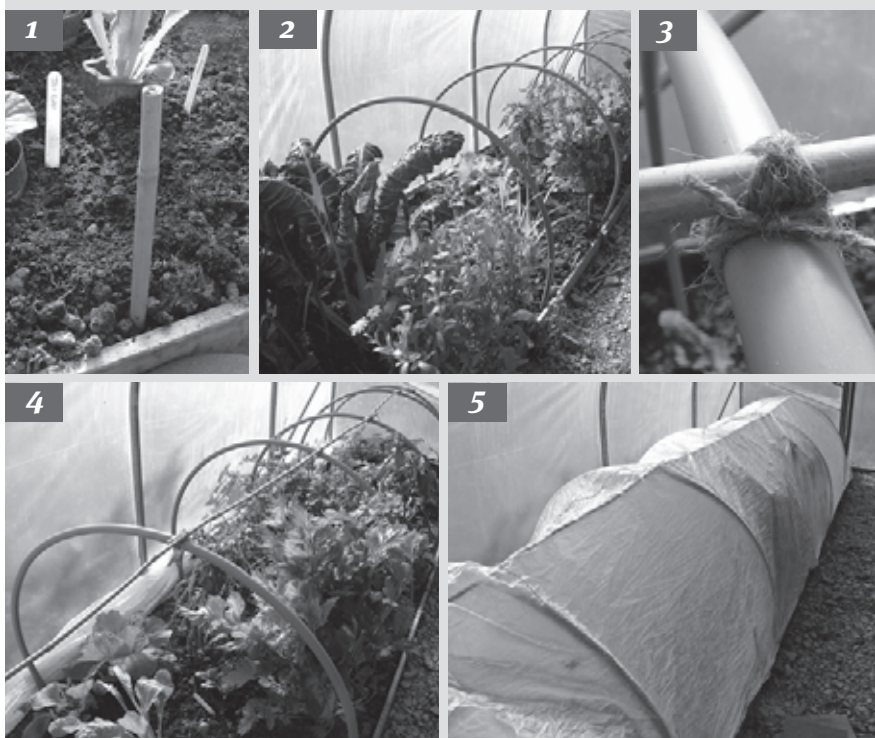
## Making a fleece cloche

Cut some lengths of 16mm (or thicker) plastic pipe, and bend them into hoop shapes wide enough to span your tunnel beds. You will need one for each metre of bed you wish to protect, plus one for the far end. To hold them in place, push pairs of 25cm-long bamboo canes into the ground to two-thirds of their length, one on each side of the bed at roughly 1m intervals, starting at one end (Figure 1). Then slot the hoops on to the bamboo (Figure 2). This is easier if the canes lean in towards the centre very slightly.

Tie longer sections of bamboo (or similar material) across the topmost point of the hoops to act as a ridge pole, giving the whole thing some structural strength (Figure 3), then tie or weight the fleece down at the bottom of the far side of each hoop (Figure 4). Tying it into place means you can pull the free edge up and over the hoops without lifting the far edge up off the ground.

To make this even easier, tie pieces of string to the path-side edges of the fleece and leave these draped over the hoops. This means that the fleece can easily be slid away from the path to the far side of the hoops. To close up, simply take hold of the string and gently pull the fleece back into place (Figure 5).

Make sure that the ends of the hooped area are covered with fleece as well, otherwise the covering will be of only limited use. If you are able to grow all your tender crops together in one area, it will be easier to protect them with a single cloche. Try to ensure that the 'tied' edge of the fleece is away from the direction of sunlight, so that less shade is created when the other edge is pulled back over it in sunny weather.



Using fleece in a polytunnel is unlike using it outdoors, where it is left in place for long periods. In the tunnel the fleece should be removed for as much of the time that the tunnel is above freezing as possible – which means most days, except if the weather is overcast and still extremely cold. However, make sure that you're around to pull the fleece back across the bed before things cool down too much – or you won't only lose its benefit but you may also lose your crops too. The surface of the fleece will probably freeze but the space beneath will not, although leaves may be frost-burnt at any point where the fleece touches them. If you are worried about a particularly tender plant in the cloched area, wrap some additional fleece around it prior to pulling the cloche cover into place.

## October

### Remove debris

Clean away all debris from summer plantings as you remove them, and roll up any growing strings, securing them to the horizontal wire with clothes pegs. This is a good time to remove everything else that won't be needed over the winter, which may include the capillary bed. The tunnel may seem like a good place to keep all sorts of things, but it should be first and foremost a growing area. The more things that are stored there, the more hiding places there are for overwintering pests and the more to eat for overwintering mice.

### Put extra compost to use

During October and November, apply any leftover compost as a top dressing to the soil beds rather than leaving it to sit over winter. Compost is best used fresh because the fungi and bacteria in it are still working to break it down, and bags left over winter are often infiltrated by slugs and other nasties, which can then hitch a lift into the tunnel in spring.

### Repair cover damage

Before the winter gales arrive, check the polytunnel cover for small holes and tears, and fix them by using polythene repair tape (available from all polytunnel manufacturers) on both sides of the film. Pay particular attention to the area around the door frames, which is where problems often start. October is also a good time to give the outside of the cover a quick clean. This will make a huge difference to the light levels inside, even if you don't think it looks all that dirty.

### Check your heaters before you need them

If you rely on any heating equipment in the winter, make sure that it is overhauled in good time. The first frosts can arrive any time towards the end of the month and may be severe enough to damage or kill tender summer plants, such as peppers and cucumbers, that are still being coddled along in the tunnel. If

you're in a frost pocket, you should put some protection in place before the end of the month (see below).

### **What to sow**

Broad beans, cabbage, coriander, kohlrabi, radishes, spring onions.

### **What to harvest**

Aubergines, beetroot, cabbage, carrots, cauliflower, celeriac, celery, chard, coriander, courgettes, cucumbers, daikon, dwarf French and French beans, fennel, kohlrabi, lettuce, pak choi, peppers, radishes, rocket, spinach, spring onions, strawberries, sweet potatoes, tomatoes.

## **November**

### **Frost protection**

Whether or not you live in a frost pocket, if you didn't set up frost protection in October it is definitely time to do it now, which will probably mean fleece cloches and/or cold frames but might also include some sort of heat sink. This is simply something with a lot of thermal mass – something heavy that takes a long time to heat up and cool down. Water butts are a commonly used option, since they are less in use over the winter, but other possibilities include large rocks and bricks (be careful, as these may also provide shelter for pests). Whatever you use should be dark in colour to absorb as much of the sun's energy during the day as possible. Some gardeners use a small heater to take the edge off the cold in their tunnels. Models that run on bottled gas are expensive to buy but many have thermostatic controls, allowing you to set the temperature. Paraffin-fuelled heaters are cheaper but lack a thermostat. Both of these options generate water vapour, leading to more condensation on the inside of the polythene film during winter, and therefore the tunnel will require more ventilation. Electric heaters do not need to be topped up with fuel, and because they don't create water vapour, no extra ventilation is needed. However, they are expensive to run.

In all cases, you should be aware that polythene does not insulate as well as glass, so unless you intend to use horticultural bubble insulation or fleece to make a smaller contained 'cloche' area (taking great care to keep it well away from the heater), the best you can hope for is to take the edge off the cold.

Finally, drain down any automatic watering equipment to prevent freezing damage during the winter.

### **What to sow**

Broad beans, cabbage, coriander, garlic and elephant garlic.

## **What to harvest**

Aubergines, beetroot, cabbage, carrots, cauliflower, celeriac, celery, chard, coriander, courgettes, cucumbers, daikon, dwarf French and French beans, fennel, kohlrabi, lettuce, pak choi, peppers, radishes, rocket, spinach, spring onions, strawberries, tomatoes, turnips.



## CHAPTER EIGHT

# Plants for the polytunnel

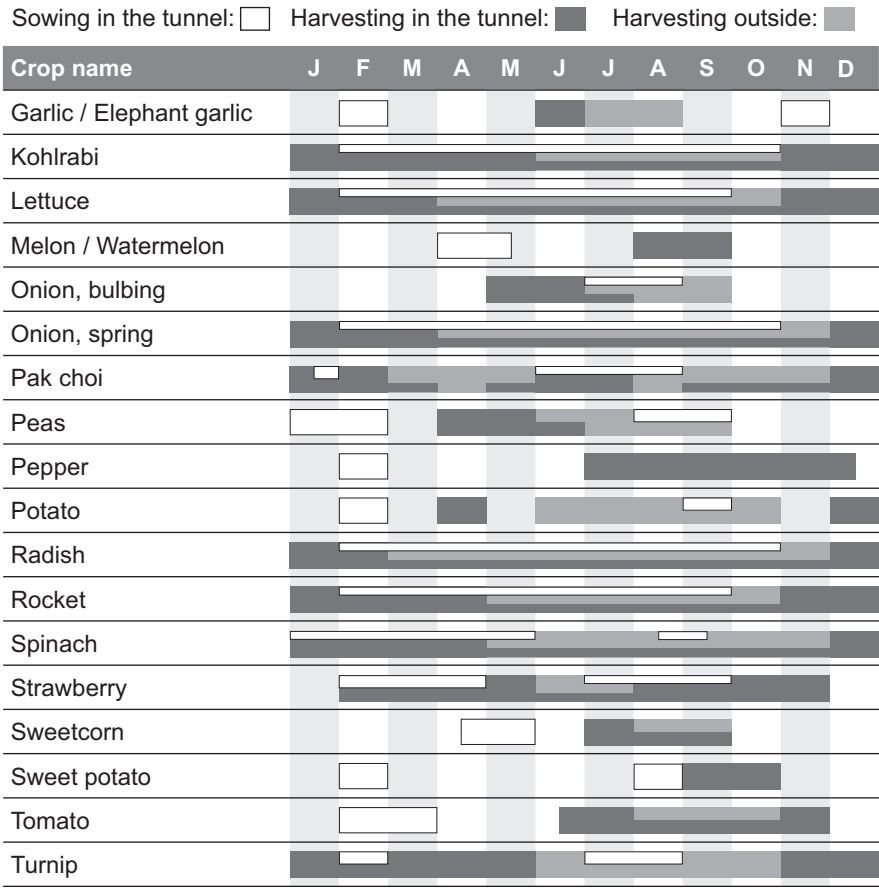
You can grow almost anything in a polytunnel, but unless you're lucky enough to inherit a farm with a tunnel the size of an aircraft hangar, you'll have to make some decisions about which plants merit covered space. This is a very individual choice, so to help you we have prepared a chart of harvest dates.

From this chart you can see when different plants can be harvested, both outside and in the tunnel, and use it to work out what's worth growing where and when. Note: the chart includes the harvest range only for plants grown as suggested in this chapter. Other uses, such as growing broad beans during the summer, are not included.

Sowing in the tunnel: ☐ Harvesting in the tunnel: ☒ Harvesting outside: ☐

Crop name	J	F	M	A	M	J	J	A	S	O	N	D
Aubergine			<input type="checkbox"/>									
Beans, broad	<input type="checkbox"/>											
Beans, dwarf French				<input type="checkbox"/>								
Beans, French				<input type="checkbox"/>								
Beetroot												
Broccoli, sprouting												
Cabbage												
Carrot												
Cauliflower												
Celeriac												
Celery												
Chard, Swiss / rainbow												
Coriander												
Courgette												
Cucumber												
Daikon												
Fennel												

(continued overleaf)



# Timing

As with growing outside, both sowing and harvest dates vary depending on the area of the country in which you live, with the far north experiencing a later spring and an earlier autumn than the far south. You should bear this in mind when working with the dates given in this chapter. However, the picture is a little more complex for polytunnel plants, since the temperature of the tunnel also depends on how much sunlight it receives, which in turn depends on cloud cover, latitude and local topography. For most of the plants listed in this chapter we give the temperature range for sowing; where no temperature is given, the plants will germinate within a wide range of temperatures without fuss.

## Choosing varieties for the tunnel

There are no hard-and-fast rules for choosing seed varieties to grow in your polytunnel. We've included some of our particular favourites, but almost any cultivar that grows well in your outside plot is fine to grow in the tunnel. When buying seed specifically for the tunnel, however, choose quick-maturing varieties with resistance to mould wherever possible. Buying organic seed (see Chapter 9) is a good start, since organic producers tend to avoid any varieties that are prone to disease.

## Problems

Along with the information for each plant, we have provided a list of the principal pest species and diseases that can pose a problem for it in the tunnel. Management of these is the same as in the outside plot, but always go for a non-chemical option where possible as the tunnel receives no rainfall to wash chemicals away to the subsoil. We give more detailed information on dealing with a wide variety of pests and diseases in Chapter 10 – those described there are indicated in bold type in this chapter.

## Storing the harvest

Knowing how to store produce correctly is a must, since this extends the period over which you can eat all those lovely tunnel goodies. A prime example of this is the cucumber, which lasts for only a week or so in the fridge (which is much too cold for it) but several months if it is wrapped in cling film and kept somewhere cool. We have provided some brief storage information at the end of the section on each plant in this chapter, but to get the most out of your produce it is worth reading in more depth about storage – one suggested title is listed in the Resources section.

Very briefly, **drying** is best done slowly with little heat but lots of air circulation, and by cutting food into small pieces or thin slices to increase its surface area. You can use a commercial dehydrator or a home-made solar drier, but you can also make drying trays of mesh, muslin or cheesecloth over a wooden frame. These trays enable you to partially dry using 'waste' heat on a sunlit patio, in an airing cupboard, or from an oven as it cools after cooking, thereby cutting down on the energy needed to dry the food fully.

**Home freezing** is a modern option that uses more energy the longer the food is kept, but it is important to remember that preserving home-grown food is still much more energy-efficient than buying unseasonal produce grown elsewhere. See *The Ethical Consumer* guidelines on minimising the environmental impact of your freezer, listed in the Resources section.

Most plants contain enzymes that turn free sugars into starch, and these enzymes will work even in deep freeze, albeit very slowly. To prevent most produce from gradually deteriorating, it is necessary to briefly cook (or ‘blanch’) it in steam or boiling water. As soon as this is done, cool it as quickly as possible by immersing it in cold water, then remove as much water as possible by shaking it or spinning it in a salad drier before putting it in the freezer. To prevent produce sticking together in a solid lump, place it on metal baking trays for freezing so that the pieces do not touch each other, then transfer them to freezer bags. This technique is called ‘open freezing’ and is suitable for most produce, though not for delicate or leafy material, which tends to dry out as it cools.

**Jam- and preserve-making** is an age-old storage method that relies on high concentrations of sugar to prevent bacterial growth, and **pickling** uses high levels of vinegar or salt to do the same thing. You can find instructions for making these in ordinary cookbooks, but the related option of **canning** needs specialised knowledge and equipment to be done safely – please don’t attempt it without doing some further reading.

## Crop rotation

‘Rotation’ is the practice of using a piece of ground to grow different groups of crops in sequence, rather than growing the same type of plant in the same place several times. This reduces the build-up of soil pests and can also help you keep your soil-feeding routine as simple as possible (see Chapter 11). Below is a simple four-stage rotation using the plants in this chapter and showing the group to which they belong. We have included the same group letters as part of the ‘harvesting dates’ icon at the top of each plant description, but how – or even if – you apply a rotation is entirely up to you.

A: Broccoli (sprouting ), cabbage, cauliflower, daikon, kohlrabi, pak choi, radish, rocket, turnip.

B: Beans (broad, dwarf French and French), chard, courgette, cucumber, lettuce, melon and watermelon, peas, spinach, sweetcorn.

C: Aubergine, garlic and elephant garlic, onion, pepper, potato, spring onion, sweet potato, tomato.

D: Beetroot, carrot, celeriac, celery, coriander, fennel.

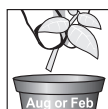
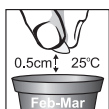
## Planting guide key



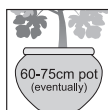
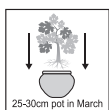
Grows best in full sun



Tolerates partial shade

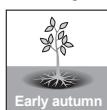
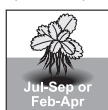
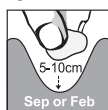
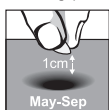


Sowing in modules/planting in pots:  
sowing depth, temperature range,  
sowing/planting date range

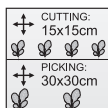
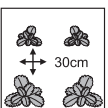
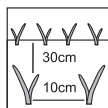
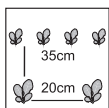
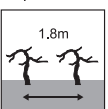
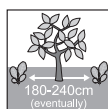
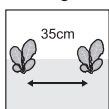


Sowing in pots:  
pot size for planting and eventual pot size

Sowing/planting direct: sowing/planting depth, temperature range, sowing/planting date range



Planting out: distance between plants



Planting out:  
distance between plants and rows



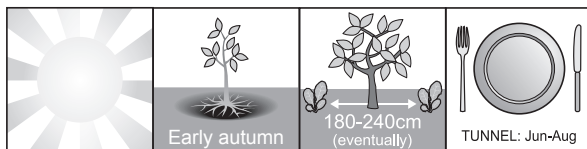
Harvesting dates: in the tunnel,  
or in the garden and in the garden,  
with crop rotation number



Seed-saving: lower numbers indicate easy,  
higher numbers indicate more difficulty.



## Apricot



### Varieties: 'Hargrand'

Of all the stone fruits available in the UK, apricots are perhaps the most underrated because commercially produced fruit is picked under-ripe, which seriously affects its flavour. If you are lucky enough to have tasted fully ripe apricots from someone's garden, you will know that their intense flavour rivals that of any fruit, including peaches. But, sadly, not many people grow apricots, simply because they're tricky and unreliable. Outside, that is.

Apricots do very well in polytunnels, partly owing to the longer growing season and warmer summer temperatures, but mainly because of the protection from spring frosts, which can seriously damage the blossom. Growing any fruit tree in the tunnel is a considerable investment of space, although you will be repaid in spades at fruiting time. You should not grow anything nearer to the tree than its drip line (the imaginary circle where drops of rain striking the outer leaves would fall), or else the two plants will compete for nutrients. Apricots root deeply and do not tolerate heavy soils, so if you are growing on clay they may not be for you.

### Planting

During the spring, order a two- or three-year-old plant on a dwarfing rootstock (usually St Julien A) and be sure to tell the supplier whether you need a fan-trained or bush-trained tree. A bush (goblet shape) is easier to prune and gives more fruit; a fan is a little trickier to get right, but is more suitable for a narrow side border. When it comes to choosing a variety, later croppers (fruiting July and August) are usually sweeter than early ones (June and July). Look for a variety that boasts good dieback resistance, but all apricots are resistant to peach leaf curl.

Well before it is due to arrive, prepare the planting spot. preferably this should be on the north side of your tunnel to minimise the shading of other plants, but remember that the eventual height of the tree will be around 2.4 metres (assuming you use a dwarfing rootstock and prune for a compact bush). Apricots will cope on any free-draining soil but ideally like deep, slightly alkaline loam, so work lots of compost or leafmould into the soil to a depth of 45cm, along with a handful of lime if needed. Plant according to the supplier's instructions, but there is no need to provide a stake for a polytunnel-grown tree.

## Maintenance

Feed the tree in February, before the buds start to break. Gently fork in a little balanced organic fertiliser, such as comfrey pellets, which will break down with repeated top watering. For established trees, use a fertiliser that is richer in phosphate, such as bonemeal. Repeat this feed every six weeks until the fruits begin to ripen, and apply 5cm or so of compost from the drip line to 10cm away from the trunk each May. After this is done you may wish to apply a circle of mulch over the same area; although this is not essential, it cuts down moisture loss and reduces any associated stress. Chunky bark is ideal because it does not attract too many slugs, but anything will do – even paving slabs.

Apricots are pruned like plums, and this is best done around May. Whatever growing form you have chosen, fan-trained or free-standing, aim to build up a nicely spaced framework of primary branches, from which the fruit-bearing laterals will appear. Apricots produce fruit mainly on second-year wood, so don't prune the tree back too hard. Once the tree's framework is established subsequent pruning is light, aimed at producing an even spacing of a few new shoots each year. Eventually some branches begin to lose vigour, and these should be removed close to the trunk in favour of new growth.

Apricots are self-fertile but if you don't see flying insects in the tunnel when the flowers open, hand-pollinate as many as you can with a soft brush. If the crop looks heavy, thin the fruits when they are the size of hazelnuts, beginning by removing any that are small or crowded. Aim for around 7cm between fruits.

## Harvesting and storage

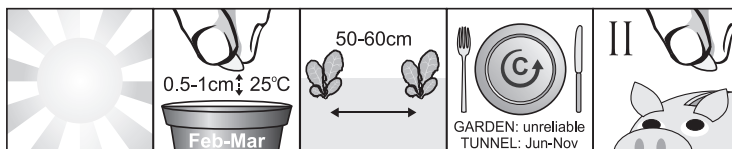
Apricots reach their full colour and stop swelling several days before they are truly ripe, so resist the urge to pick early; if there isn't an intense apricot flavour, wait! Fruit for jam-making or cooking, however, should be taken while they are still quite firm. The fruit is easily damaged, so make sure that you grasp the stalk when picking and handle them carefully. Undamaged fruit will store for several weeks in a cool place, in a box lined with soft paper.

Should you have more than you need, apricots can be dried: simply halve them, remove the stone, and slice if you wish. Naturally dried apricots darken quite a bit but have an excellent flavour eaten as they are, or soaked in an equal amount of warm water for 15 minutes to soften them. Freezing is also an option, but since the skins toughen it is better to remove them by plunging the whole fruit into boiling water for 15 seconds, or until the skins loosen. Transfer the fruit into cold water for a few moments, then slip the skin off before halving and pitting. Mix the fruit with honey thinned with warm water and a dash of lemon juice before freezing.

## Problems

**Aphids** and **red spider mites**. Dieback and bacterial canker are possible, although less likely in a tunnel than outside. Remove any affected growth with sterilised secateurs and paint the cuts with a protective compound.

## Aubergine (eggplant)



**Varieties:** ‘De Barbentane’, ‘Long Purple’

Aubergines are very difficult to grow outdoors in the UK, despite claims made by some seed merchants. Although they are not susceptible to blight like their hardier relatives, tomatoes and potatoes, they cannot tolerate sudden fluctuations in temperature and will fail completely in indifferent summers. They are ideal contenders for some space in a polytunnel, either in containers or planted into the beds.

## Preparation

Aubergines like full sun and fertile, well-drained soil into which plenty of well-rotted manure or compost has been dug. A handful of bonemeal will give stronger plants.

## Sowing

Aubergines like exactly the same conditions as peppers and tomatoes. To get a good fruiting season out of them it's important to start them off early. Sow seeds thinly, 0.5-1cm deep, in modules from mid-February to the end of March in a heated propagator or on a warm windowsill indoors. They can't be planted out in the tunnel until the weather is consistently warm (typically early May), so keep them somewhere warm and bright until then. If this isn't possible, delay sowing until late March at the earliest – or consider buying plants from a nursery, remembering to quarantine them for two weeks (see Chapter 4, page 33).

Move the modules to 9cm pots as soon as they have four true leaves. If the plants get too big for their pots before conditions are warm enough to plant them into the soil beds, pot them on into something bigger.

## Growing

Set the plants into their final positions 50-60cm apart, and nip off the growing tip at around 35cm to encourage side-shoots. Keep the soil moist at all times.

Once four or five flowers have set fruit, nip off any others that form and provide the plant with support using canes or string (see Chapter 6, page 51). Most plants will successfully ripen only this many fruits, and additional flowering just wastes the plant's energy.

Unlike tomatoes (some of which can be grown outdoors in the UK), aubergines are not affected by blight, but they are prone to moulds. Give the plants plenty of ventilation, and remove any dense central foliage that may prevent good air flow – otherwise the flowers are unlikely to set fruit.

## Harvesting and storage

Some varieties can fruit as early as mid-June and will continue until the frosts arrive. Fruit production is helped by giving a dose of liquid tomato feed every other week after the fruiting begins. As the fruits swell, remove any flower petals that remain stuck to them, or they may go mouldy. Harvest the fruit while it's still glossy – a dull skin indicates that it's been on the plant too long and is over-ripe.

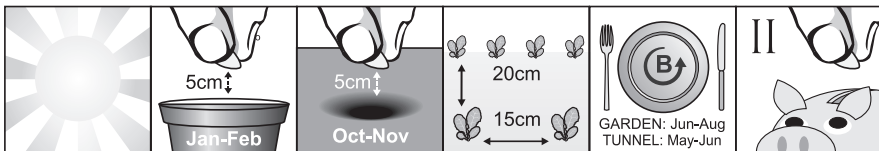
Before the first frost, but as close to it as you can anticipate, cut the entire plant down and hang it upside down in a frost-free environment. Any remaining fruit will then continue to mature.

Aubergines can be dried successfully after cutting them into 1cm slices and blanching in boiling water for three minutes. The dry slices can be added to soups and stews, or soaked in warm water for 20 minutes for adding to other dishes. Frozen aubergine tends to lose its texture, so it is best to roast or sauté it before freezing, or to cook and freeze the whole dish; lasagne and ratatouille are good examples of dishes where this works very well.

## Problems

**Aphids, red spider mites and whitefly.** If watering is uneven, aubergines will get blossom end rot.

## Beans, broad



**Varieties:** 'Aquadulce Longpod', 'Express'

Broad beans are easy to grow, but as they can be around 1.2 metres tall they can easily get blown over outside, especially when loaded with heavy pods. Growing

an early crop in a tunnel is ideal, as it gives them a sheltered spot in which they can do really well.

Some varieties are quite hardy and can be planted from October right through into January (the beans can germinate when it's as cold as 2°C) to give an early harvest the following year. Planting some for overwintering in the tunnel is definitely worthwhile, but as spring plantings will usually do perfectly well outside it seems a shame to let them take up valuable tunnel space over the summer.

**Note:** In exceptional winters, prolonged periods of frost will kill even the hardiest varieties of broad beans. Each time the temperature drops below freezing, the plants wilt as the cold pulls moisture from the cells. Once the frosts pass, the plant normally regains its rigidity and life goes on. However, if the temperature stays below freezing for a longer period, the wilting effect can increase until the plant can no longer support itself and just folds up and dies. This can sometimes be prevented by giving the plants some support, and covering them with a protective horticultural fleece.

## Preparation

Broad beans will do well in a wide variety of soil and growing conditions, so long as they don't become waterlogged. Try to give them a deep, well-drained soil into which some compost or manure has been added a few weeks beforehand. Even though legumes are able to create their own nitrogen supply, this doesn't happen until the plants have become well established.

## Sowing

Broad beans can be sown direct, 15cm apart, with 20cm between rows. They can also be planted in modules to provide protection from slugs and rodents, but as they do not like being transplanted, great care should be taken. Use deep root-trainer modules or biodegradable pots to reduce the risk of transplant shock. Sow the seeds at 3-5cm deep, and put the tray somewhere bright.

Direct sowing from October or November will give a harvest beginning the following May. Plant a few extra seeds between the rows to replace any seeds that do not emerge. Seeds started in modules indoors in January will be ready to plant out some time in February and should be ready to pick in June. Put the modules out to their final spacings as soon as possible if they show root growth through the pots.

## Growing

Ideally, broad beans are planted in a block rather than a single row as this makes them easier to support. Set stakes at each corner of the block, then loop wire or twine around them and between the plants, creating a mesh of support. Nip out the growing tips within a week of when the first pods appear.



## Harvesting and storage

For the best flavour and texture, pick as soon as the beans have developed inside the pods. Older beans develop a thick white skin that needs to be removed prior to cooking. Broad-bean pods can also be eaten whole if they are taken from the plant when just 6-7cm long and steamed. Beans can be dried for storage and are a great addition to winter soups, or can be blanched for three minutes before open freezing.

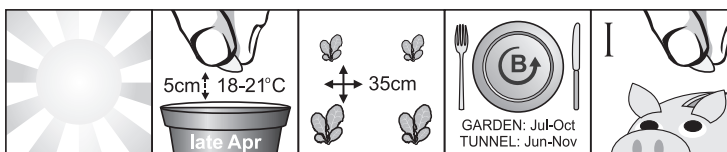
Plunge frozen beans straight into boiling water without defrosting them first, and drain and serve as soon as the water comes back to the boil.

A common misunderstanding among many gardeners regarding legumes is that, because they are 'nitrogen fixing' plants, they enrich the soil simply by growing in it. In fact, almost all the nitrogen is used by the plant during its life and very little is left behind in the roots, so as soon as the last of the beans have been picked the plants can be lifted, roots and all, if you want to use the ground again straight away. If not, cut the stems off just above ground level and leave the roots to rot down in the soil. A week or two later you can pull the stem and thicker pieces of root out without disturbing the ground too much.

## Problems

**Mice and aphids.** To prevent problems with aphids (especially blackfly), nip out the growing tip and first few inches of stem at the first sign of trouble, or when the first pods appear, whichever is sooner. Doing this also encourages the plant to direct its energy into producing bigger beans. Don't throw away the tips unless the blackflies found them; they are delicious steamed with a little butter.

## Beans, dwarf French



**Varieties:** 'Aquilon', 'Speedy'

French beans grown in the tunnel can be sown earlier and will mature faster than those grown outside, giving an extension to the season. Dwarf French beans are ready to harvest a week or two earlier than climbing French beans, making them an ideal tunnel crop to combine with outdoor sowings of climbing beans, and giving this delicious vegetable a really long season. The disadvantages of dwarf beans, namely slug attack and soil splash, leading to poorer pod quality, are both less of a problem in a polytunnel.

## Preparation

All French beans prefer a rich soil with good moisture-retentive properties, and are deep-rooting. Check your soil condition by digging a test hole, about a spade-and-a-half deep, and if necessary amend it by forking in some compost and watering it in. Ideally this should be done around the same time as the seed is sown in modules, to give the soil time to settle again.

## Sowing

Do not be tempted to pre-soak beans before planting, as this encourages halo blight, to which they are prone. To minimise losses, sow individually in deep modules or biodegradable pots in an area protected from mice, with a little heat if early. Once the leaves appear, transfer to a slug-free shelf, transplanting when large enough at a spacing of 35cm each way. French beans will not tolerate even one degree of frost, so fleece the seedlings unless you are confident that all danger of frost has passed; if they are frost-damaged they will never fully recover and your only option will be to re-sow. Sow from late April; for a continuous crop successive sowings can be done every month or so and dovetailed with those grown outside.

If you wish to sow direct, place the seed in 5cm-deep drills 35cm apart, sowing several extra seeds at intervals between the rows for filling in any spaces. Remember that if you are growing more than two rows you will need to leave space between each pair to give you access for harvesting.

## Growing

Although dwarf French beans usually do not need supporting, they can grow quite tall in the protected environment of the tunnel, and the sheer weight of the developing pods may drag them down. If the plants begin to look unstable, place a bamboo cane at each end of the row and run some twine in a loop between them and around the plants.

Some additional watering will help the plants establish themselves after transplanting, and yields will be higher if they are kept nicely moist once flowering starts. However, avoid wetting the leaves (as far as possible) to discourage the spread of diseases such as halo blight.

## Harvesting and storage

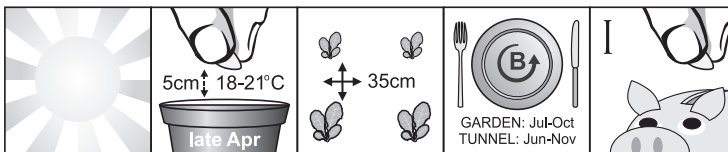
For the best yields and flavour, harvest regularly while the pods are still young. As with most beans, any seed reaching maturity releases a hormone to stop further flowering, so make sure not to miss any. Varieties with coloured pods can help here as they are easier to see. After about four weeks of harvesting the beans get fewer and coarser and it's time to take the plants out. However, if you need to extend the harvest a little, a single boost with double-strength liquid tomato fertiliser can sometimes trigger another show of flowers.

Once picked, enzymes in the beans begin to lock up sugars as starch, so cook them as quickly as possible. They may be frozen (after blanching for two or three minutes) or dried. Frozen beans lose some of their texture, and should be plunged straight into boiling water without thawing first, then drained as soon as the water comes back to the boil. Some varieties selected specially for podding and drying are available; these make a handy smaller alternative to kidney beans in the store cupboard, with a short cooking time.

## Problems

**Moulds, slugs and aphids.** Sticking to the suggestions on spacing will help air flow around foliage, allowing it to dry quickly and reducing the chance of botrytis and other moulds getting started. It also helps to avoid little pockets of damp, shaded soil that slugs enjoy.

## Beans, French



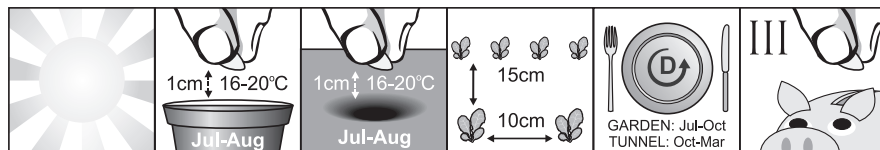
**Varieties:** ‘Cherokee Trail of Tears’, ‘Eva’

Climbing French beans are sown and grown in exactly the same way as dwarf varieties and give bigger harvests, but need to be grown up cane supports or strings (see Chapter 6, page 51), which the plants find easier to grip. If using canes, these are best linked together to provide some stability, traditionally by putting them in pairs leaning in towards the middle of the double row with a horizontal cane tied along the top. In the close confines of a tunnel it is better to arrange the canes in threes or fasten three strings to the same point on a horizontal wire to make a row of tripods; this minimises shading but gives all the stability of a ‘wigwam’ arrangement without so much crowding at the top. Build the tripods before transplanting modules or sowing seeds directly, 5cm deep, at the base of each, and pinch out the growing tips when they reach the top.

Climbing beans can get extremely tall if you let them – 2.5 metres not being unusual in a tunnel – and so they should be placed on its north side to avoid shading other plants. If this is not possible in a particular year, use the shaded area for plants that welcome it in the heat of the day, such as beetroot and lettuce.

**Warning:** It is very easy to accidentally poke a hole in the tunnel cover with bamboo canes, particularly when you pull them out of the ground.

## Beetroot



**Varieties:** ‘White’ (dual purpose – tasty leaves), ‘Detroit 2 Bolivar’, ‘Cylindra’

Beetroot is easy enough to grow outside during the spring and summer, and also stores well, but it’s still worth giving a few plants space in the tunnel for an overwintering harvest that extends into early spring.

### Preparation

Beetroot prefers to grow with little or no competition. A loose, well-drained loam with plenty of organic matter will help to retain the moisture it needs and allow its roots to develop.

### Sowing

The seeds are actually seed clusters. Several may germinate from a single cluster, while others do not germinate at all. Germination can therefore be erratic.

**In modules:** Sow beetroot seeds 1cm deep in modules, several seeds per pot, and thin to the strongest.

**Direct:** Sow every 2cm in rows 15cm apart, then thin to roughly 10cm.

Beetroot will germinate in cooler conditions than many plants – roughly half the seeds should sprout at only 5°C, though they will be extremely slow coming up – but more will germinate at temperatures right up to 25°C, when they’ll take only a few days. However, their ability to grow in cold weather makes them an ideal early crop, as it’s not necessary to wait until the earth has thoroughly warmed before sowing or planting them out.

For overwintering in the tunnel, sow seeds in modules from mid-July to the end of August. Plant out from August to mid-September. This produces a staggered harvest beginning in November and continuing right through to the spring.

### Growing

After the first leaves appear, beetroot seedlings are slow to get started. Don’t allow them to get crowded or they won’t develop properly.

### Harvesting and storage

Young beetroot leaves are edible and very tasty (they are closely related to chard), but will not successfully overwinter outside as they wilt when the root is ready.

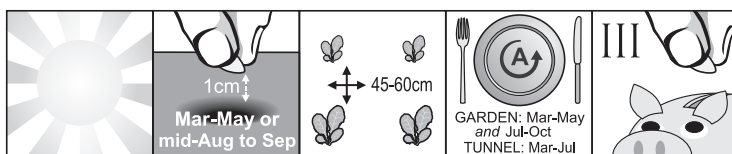
Wilted leaves in the bed is more likely to indicate that the plants are ready to harvest than an actual problem – unless you forgot to water them for a while! You don't have to leave beetroot until the roots are fully mature, however. For the best flavour, pick them as soon as you think they're large enough. If the roots are left in the ground for too long they are likely to become woody, but this will not happen if they are lifted and stored. Some varieties can get much bigger than others without going woody.

Beetroot can be lifted for storage in straw or dry sawdust. Twist off the leaves first and place the roots so that they aren't touching each other.

## Problems

**Slugs.** Young seedlings may need protection, although they are often ignored in favour of other plants.

## Broccoli, sprouting



**Varieties:** 'Purple Sprouting Early'

Home-grown broccoli is seldom as perfect-looking as the heavily sprayed stuff you see in the supermarket – but when it comes to taste, it is far superior. If you struggle to find the space for this plant outdoors, given the space and long occupancy time it needs, try it in the tunnel from an autumn or late-summer planting where, without all the trouble from wind, caterpillars and pigeons, its vigour may surprise you.

There is usually no need to net the plants if grown over winter. Using a fast-maturing variety such as the open-pollinated 'Quick Heading Calabrese' (available from The Real Seed Catalogue at the time of writing – see Resources section) will give more predictable results in our uncertain climate, at the expense of slightly smaller heads.

## Preparation

As for cabbage (see overleaf).

## Sowing

Sow two seeds per 5cm module, thinning to the strongest once the seedlings emerge. Harvesting dates are heavily dependent on the variety chosen, but for fast-maturing varieties sow from mid-August to the end of September for a harvest



from March to May, or early March to mid-May for harvesting May to mid-July. Although you can sow during the summer, broccoli really doesn't like the heat, so for later harvests it is best to grow a heading variety outside.

## Growing

Transplant the seedlings into the bed at 60cm each way, or 45cm each way for fast-maturing varieties, and protect with fleece in freezing weather. Do not allow the soil to dry out, especially once flowering starts.

## Harvesting and storage

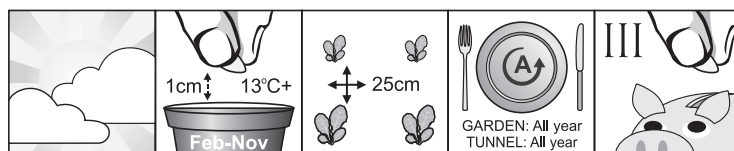
Cut from the base of the main flower stem as soon as it forms. Don't leave it too long as the flavour and texture deteriorate once the tiny flowers open – something that can happen very quickly in warm weather. If the bed is not needed immediately, leave the plants in place to form smaller flowering side-shoots. Don't forget that small, tender leaves are also edible (and very tasty). Broccoli plants do not do well in hot, dry weather, so if spring plantings begin to struggle, don't wait for side-shoots. Leave the main flowering stem to plump up, harvest it, and remove the whole plant to free up space sooner for other plants.

Broccoli for freezing is best harvested early, when the heads are still tight. Split them lengthways into sections no more than 3cm thick, blanch for two or three minutes, and spin or shake thoroughly before open freezing on lightly greased trays to reduce sticking. Treat gently once frozen to avoid the heads being bashed to pieces. Frozen broccoli should be plunged into a large pan of lightly salted boiling water and served as soon as the stems are tender.

## Problems

**Club root, caterpillars, flea beetles, aphids, birds and slugs.**

## Cabbage



**Varieties:** 'Précoce de Louviers', 'Hispi'

Cabbages have been undergoing something of a renaissance in the last couple of decades, throwing off their old reputation as soggy, smelly and strong-tasting – a combination of the worst characteristics of some older varieties and the traditional habit of boiling them to death. Now they are available in a bewildering

number of distinct varieties and are becoming fashionable again, and none more so than the pointed sweetheart cabbages developed in the late twentieth century.

It is quite possible to grow cabbages for eating all year round outside, but the long period of occupation of the ground coupled with the amount of space involved puts many gardeners off. Using a quick-growing sweetheart variety in the polytunnel allows you to produce tender growth quickly without the twin horrors of cabbage root fly and pigeons, and the plants do noticeably better under cover. 'Précoce de Louviers' is particularly suitable for this since it is very fast-maturing and has excellent flavour. If you cannot obtain this, 'Hispi' also gives very good results, although, being an F1 hybrid, it is not suitable for seed saving.

## Preparation

Like all brassicas, cabbage does not do well in acid conditions, so fork in some compost and check the pH a month or two before sowing, and correct it to 6.5-7.0 with a dusting of lime if necessary. Never plant cabbages in soil that is too rich in nitrogen, such as recently manured beds, because they will produce a profusion of lush greenery but refuse to heart. An application of rock dust to the soil (see Chapter 11, page 179, for further details) every few years helps with moisture retention as well as providing a whole basket of long-acting nutrients, and few plants will show the benefit so markedly as cabbages.

## Sowing

There are considerable advantages to module sowing, since early growth is slow and final planting distance comparatively large. Modules are also easier to protect from all the many animals that love to eat young brassicas. Cabbage seeds will germinate in quite low temperatures (a little bottom heat is advised if daytime temperatures are below 13°C), although there is little point sowing at the onset of winter. Sow two seeds per 5cm module, 1cm deep, in compost to which a dusting of lime has been added (purchased compost tends to be a little too acid for comfort), nipping out the weaker plant once the first true leaves develop. Using smaller modules simply makes work because you will need to transplant the seedlings to a larger pot before they are ready to plant out.

'Précoce de Louviers' is ready in early spring from an autumn sowing, in early summer from a February sowing (with heat) and in summer from a late April sowing. To stand the best chance of hitting your desired harvest date with plants standing over winter, we suggest two sowings a month apart.

## Growing

Transplant into the soil beds when the seedlings have five leaves. Ignore the spacings in the seed catalogues and go for around 25cm each way, aiming to harvest every other plant for delicious, tender greens as the canopy closes over. Leave the rest to heart up. Keep the bed well watered, particularly in hot weather,

which is tough on these moisture-loving plants; a good compost mulch around and between the plants will help reduce loss from surface evaporation. Spraying with an organic seaweed-based foliar feed just as the heads begin to form will give you the best yield.

## Harvesting and storage

Sweetheart cabbages have a tendency to bolt shortly after forming their heads, so harvest each plant as soon as a gentle squeeze tells you that the head is firm. Cutting the head away with a sharp knife and leaving the lower leaves in place will not kill the plant, and if left alone it will eventually produce new shoots suitable for 'greens'. However, such extravagance of space is seldom practical in a polytunnel, and may increase the risk of club root infection. Instead, loosen the root ball with a garden fork and pull the stalk out as cleanly as possible.

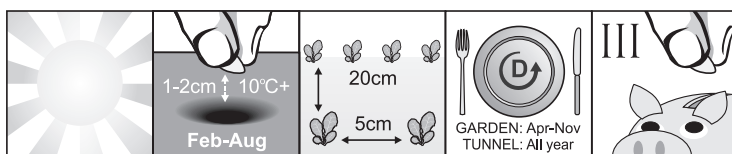
Shredded and blanched cabbage may be frozen or (unlikely as it sounds) dried, but cabbage is undeniably best eaten fresh. In cooler months, cut cabbage heads will keep well for a week or two wrapped in newspaper on racks in an airy, frost-free shed or garage, but they tend to develop a strong smell so do not store them indoors. Sweetheart cabbages are not good for pickling.

## Problems

**Club root, caterpillars, flea beetles, aphids, birds and slugs.**

**Cabbage root fly** is almost never a problem in polytunnels, so there is no need to take any steps to prevent it unless you are growing brassicas right outside the doors, in which case the flies may then be attracted towards the tunnel plants.

## Carrot



**Varieties:** 'Nantes 2'

A huge selection of carrot varieties is available to the gardener today, ranging from early to maincrop; with short, long and even round roots, and colours from white to all shades of yellow, orange and red.

While maincrop carrots will do well outside during spring and summer almost anywhere in the UK, all carrots are slow and delicate to start and prone to pest attack while growing.

Carrots grown in outside beds are far less likely to overwinter well in the ground and need to be lifted for storage, whereas carrots taken young are tastier and more tender than mature roots, but don't store well over the winter. However, if they're grown in the tunnel, they are much better protected from pests and can usually overwinter in the ground with ease, allowing a year-round harvest.

## Preparation

Carrots do well in a variety of conditions but for good root development they need deeply prepared, free-draining soil that is free from stones or lumps of compacted earth. No manure or compost should have been added since the previous May, as too much nitrogen makes the roots fork. If you are gardening on very heavy soil, dig in plenty of leafmould well before planting, or consider making a raised bed where you can dig in a little sand.

## Sowing

Carrots are best sown thinly, direct in drills 1.5-2cm deep. The soil should be kept moist until the seedlings have their first true leaves. The seeds are small, so they can be mixed with sand to help you to see where you've already sown. This cuts down on later thinning.

Like beets, carrots can germinate at cool temperatures and so can be planted in the tunnel as early as February. Roughly half of them should sprout at only 5°C, while at 10°C almost all of them should come up. Germination is typically slow and can be helped by covering the bed with fleece until the first seedlings appear. If a few radish seeds are sown along the drill, they will germinate first and mark the position of the row for you.

For continuous harvesting throughout the year, begin sowing in February. As a guideline, allow 30cm of carrots per person at any one sowing. As soon as the seedlings have their first true leaves make the next sowing, and so on until August, when you should make a last large sowing to stand over the winter.

## Growing

Keep carrots well watered at all times or the harvest will be much smaller. Thin to 5cm apart, preferably on a dull day to reduce the risk of attracting carrot flies. These are rarely a problem in the tunnel, whereas in an outside bed they can be a real pest. If they are a severe problem in your garden, thin and harvest carrots in the evening after closing the tunnel doors.

## Harvesting and storage

August sowings will stand over the winter and can be used as they are needed; bear in mind that there will be no more carrots until the February sowings are ready in early May, so make your August planting large enough to last until then. Some of the plants may try to bolt (pick them as soon as you see a thick central stem appearing), but the others will be fine in the ground until they are needed.

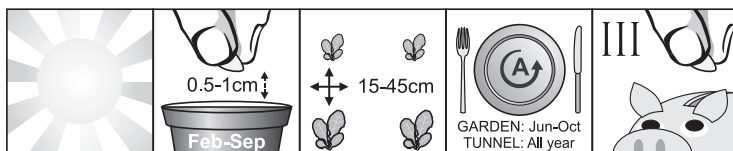
If you have sown too many, undamaged carrots can be lifted for storage in early September. Twist the leaves off the roots, leaving a stub of 2-3cm, and lay them in damp sand or compost in a box with some space between them, so that if one spoils it's less likely to infect its neighbour. Check them from time to time to make sure they're not rotting. If you still have roots left in early spring and find them sprouting, or if the winter is so mild that sprouting begins early, cut the tops off the roots with a sharp knife and dip the cut into wood (not coal) ash to stop further growth.

For longer-term storage, carrots may be sliced (or diced) and blanched for four minutes before freezing. They also dry surprisingly well, plumping up again in soups and stews so nicely that you would hardly know they weren't fresh.

## Problems

**Carrot fly** (seldom seen in polytunnels) and **slugs**, which can attack the seedlings if other food is scarce.

## Cauliflower



**Varieties:** 'Igloo'

Because cauliflowers can be in the ground for a long time (more than eight months for some varieties) and generally take up quite a bit of space, they may not seem like an obvious choice for polytunnel growing. However, if circumstances make them difficult to grow well outside you may find that they fare better in the sheltered, moist and cabbage-root-fly-free environment of the tunnel and reward you with picture-perfect solid white curds in record time.

Cauliflowers are greedy feeders, so fork some compost or manure into the site a week or two before planting out and keep well watered at all times; if cauliflowers get too dry they will either form tiny heads or bolt. Feeding with a balanced organic liquid feed once a fortnight will pay dividends in both size and vigour. Since they prefer a pH between 6 and 7, you may also need to add a little lime to the soil.

## Sowing

Purchase seedling plants or sow seeds in pots or modules. Sow two seeds in a 5cm module and nip out the weaker one once they have their first leaves – then

you won't have to disturb the roots when transplanting, but simply pop the module out and plant it. All brassicas benefit from being planted quite deep, right up to the level of the first seed leaves. Direct sowing is not recommended in the tunnel unless you are certain the area is absolutely slug-free.

## Growing

When the plants reach 10cm (or traditionally have a fifth true leaf), plant them out at 45cm each way, or as little as 15cm if you plan to take them as baby vegetables. The time they take to reach maturity depends hugely on your chosen variety, but during warm weather fast-growing varieties such as 'Igloo' can be ready for harvest as small heads in as little as nine weeks, or as full-sized heads in fourteen. Some varieties (including 'Igloo') are 'self-blanching', meaning that they curl their inner leaves over the head as it develops. For others, when the heads start to swell, fold some of the outer leaves over to protect them, breaking the midrib if necessary.

During the warmer months cauliflowers need to be protected with nets or fleece all the time to keep butterflies away. If you decide to use netting, keep it suspended over the plants with canes or cloche hoops, because if it lies directly on the leaves, butterflies will lay their eggs through the mesh. Please note that using fleece will increase the time to harvest, so if you plan to do this make sure you choose a well-lit spot with very little shading from other plants. If you intend to grow any large brassicas, then netting the tunnel doors is often the simplest remedy, but do remember that some plants, such as strawberries, need flying insects to pollinate them.

## Harvesting and storage

Harvest while the curd is still tight for the best texture and flavour. Once cut, cauliflower keeps well in a sealed plastic bag in the fridge for a week or more, and although some varieties develop a stronger smell if kept in this way, their taste is not affected. Cauliflower can also be frozen by breaking it up into florets, rinsing them well in cold water to dislodge any animals, then blanching in boiling water for three minutes before open freezing.

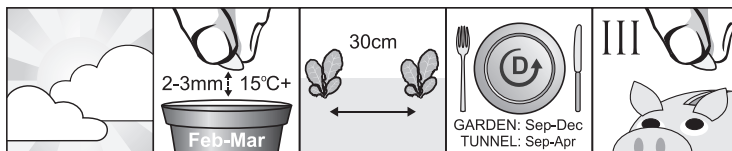
## Problems

### **Flea beetles, caterpillars, slugs and aphids.**

Magnesium deficiency: cauliflowers have high demands for magnesium, so if levels are low in the tunnel you will often see it in cauliflowers first. If you see yellowing leaves with green veins, feed with Epsom salts at 75g per 4.5-litre can. When the area is next free, check that the pH is not too low (below 6) and correct with dolomite lime if necessary, as acidity reduces the availability of magnesium.



## Celeriac



Celeriac, related to celery, is a root vegetable with a texture like potato and a mild, celery-like taste. It is used raw in salads or cooked like potato, with which it is often mixed. Celeriac needs a longer growth period than most vegetables and many gardeners struggle to get worthwhile roots, particularly in northern parts of Britain. The polytunnel not only stretches the growing season for celeriac but also provides enough protection for it to be left in the ground right through the winter, so that it is in perfect condition when it is needed.

### Preparation

Like carrots, celeriac prefers a loose, well-drained soil that is not too high in nitrogen, so as to encourage root development rather than lots of leaves. It will do well in spots that had well-rotted manure or compost added during the previous season.

### Sowing

To give celeriac the longest growing season possible, it is best to sow it in modules on a sunny windowsill indoors, or with some gentle heat in the tunnel, in February or early March. The seeds are extremely tiny, so cover them with just 2-3mm of earth or alternatively leave them on the surface and cover the pot with a plastic bag to conserve moisture. The root system of the seedlings is quite extensive and likely to become a tangle, so thin to one plant per module as soon as possible. This will mean less stress when you plant them out in mid-May.

### Growing

Plant about 30cm apart in a sunny spot for the biggest roots, though celeriac will also cope well with a partially shaded situation. Protect the young plants from slugs, and take care not to let them dry out until they are well established. As the roots develop, pull earth up to cover them more. This helps to keep woodlice out, and also helps the root to stay white. Feeding is not necessary in reasonably fertile soil.

### Harvesting and storage

Celeriac can be harvested as soon as you think the roots are big enough, usually from October onwards. They can be stored in the same ways as carrots and beets, but in the polytunnel they are usually better just left in the ground until needed, provided they are covered with fleece when heavy frost is expected.

Although the outer leaves of celeriac tend to be tough, they can be used to flavour stock and soups as a substitute for celery itself, which is out of season in winter. The tender inner leaves are mild enough to chop straight into salad, and if you keep removing them the plant should not bolt until late April, making it a useful harvest for the hungry gap.

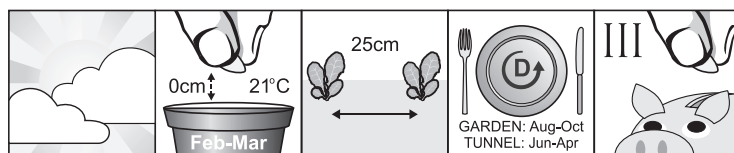
Once cut, celeriac root quickly turns brown unless it is cooked immediately or dipped in water with a splash of lemon juice in it. At this stage it can be stored in the fridge for two or three weeks. Celeriac also freezes well after blanching for four minutes in boiling water.

## Problems

**Celery fly** and **slugs**. Celeriac is a strong and unfussy plant, and is unlikely to come under significant attacks by pests and diseases once established. The exception to this is slugs, which create small holes in the young root as it develops.

**Woodlice** lack the strong mouth parts to get through the root's tough skin, but will happily excavate any slug holes into large cavities, which can render large portions of the root unusable. To reduce these attacks, always remove the leaves as they collapse and keep the root portion well earthed up from the very start. If you put copper rings around the plants to keep slugs away, make sure you remove them before the growing root gets too big to do so easily.

## Celery



**Varieties:** 'Reselected Giant Red' (for overwintering), 'Green Utah', 'Full White'

Although celery is often regarded as a difficult vegetable, modern varieties are actually easy to grow and very worthwhile contenders for some space in the tunnel. A versatile and uniquely flavoured vegetable, celery is eaten raw in salads and can also be cooked, especially later in the year when the stems are larger and less tender.

With a polytunnel you can be eating fresh celery from June onwards. Celery can even stand through the winter and into the following spring, though the stems may become somewhat stringy as the plant gets older.

## Preparation

Celery needs lots of food and water, or the stems will develop strings and hollows. It prefers cool, moist conditions in partial shade and, being derived from a marsh plant, is more tolerant of too much water than many plants. The earth should have plenty of organic matter dug into it, and a mulch of comfrey leaves applied from time to time as the plants grow will provide additional nutrients, as well as preventing the soil from drying out.

## Sowing

Sow celery from February to the end of March. Celery seeds need light as well as warmth in order to germinate well. Fill a pot with a fine seed compost and dampen it, then scatter the seeds right on the surface and cover with a clear plastic bag to prevent them from drying out. If they do need additional water, carefully use a misting spray so as to not dislodge the seeds.

Celery germinates best at around 21°C, when the seeds should be up within two weeks. Try to avoid letting the seedlings chill to below 13°C, or they will tend to bolt later in the year. They can be potted on into compost once the first true leaves have developed, and should be planted out when they are 7-8cm tall.

## Growing

Plant roughly 25cm apart each way, either in a row or a block, and mulch round the plants with compost immediately. This compost top dressing should be repeated two or three times more as the plants grow, both to help them hold on to moisture and to keep them well supplied with nutrients.

Celery is easily damaged by frosts, so it must be protected if it is to overwinter. Cover with a fleece cloche and keep a close watch for pest damage. Slugs will try to take up residence in the centre of the plants and should be carefully removed.

Traditionally, celery plants were blanched to produce lots of white stem by being grown in trenches that were gradually earthed up around the plant. This is a lot of work, but modern 'self blanching' varieties have a more upright growing habit, so you don't need to expend so much effort if you are keen to have a good harvest of blanched celery. Some people prefer to tie the outer stems up around the central growth, but this makes it harder to spot pests and unless you are particularly fond of pure white stems it isn't really necessary.

## Harvesting and storage

If you want to go for the 'blanched' result, either tie up mature plants with twine or pack straw around the plants. Otherwise, just let them grow and harvest individual stems from June onwards as needed. Always remove as much of the stem as possible when harvesting single stems to reduce the risk of rot, which may spread to the heart. The remaining plant will continue to develop into the familiar 'head' as usual, albeit a little later.

Celery is often used as a basic ingredient of good stock, and it is worth mentioning that the leaves of the celeriac plant (see page 84), which can be overwintered in the tunnel, make a good celery substitute in late winter and spring. However, with the protection of a fleece cloche it's also possible to overwinter celery until it bolts in April. At some point in late December to January the stems will have become poor and will not be worth harvesting, but, if the plant is left to itself, new growth beginning some time in February will be tender and delicious.

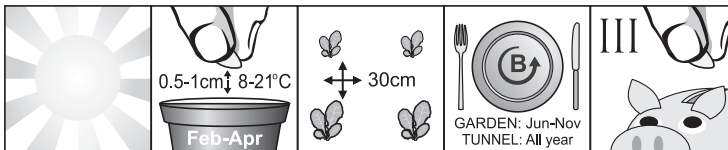
Celery dries well if cut into pieces no more than 1cm thick, but must be blanched for two minutes first. The dried pieces can be dropped straight into cooking. Celery can also be frozen, but because its texture deteriorates this is best done after cooking.

## Problems

**Celery fly** and **slugs**, both of which become more significant in plants left to stand into the late autumn and winter.

Celery fly is uncommon in polytunnels, but you can reduce your risk by mulching around newly planted seedlings with compost and covering them with fleece until they are established.

## Chard



**Varieties:** ‘Sibilla’ (white stems), ‘Rainbow’ (red, orange and yellow stems)

A versatile green with a mild, earthy flavour, only vegetable gardeners know just how good chard is. It wilts too fast to make it a viable commercial plant, so you are unlikely to see it on shop shelves. ‘Swiss’ chard has a white stem, but there are also varieties with pink, red, orange and yellow stems.

Chard is a most unusual vegetable. The baby leaves are delicately flavoured and can be picked and added to a salad or a sandwich in exactly the same way as lettuce and spinach. The more mature leaves, which have a stronger flavour, make a fantastic steamed vegetable. Then, when the plant bolts in its second year, you can continue to pick from it because, unlike just about everything else, the flavour doesn’t change when the plant is bolting.

Chard is worth growing in the tunnel because, although it can withstand moderate frosts, anything more severe will kill the outer leaves, drastically reducing the

harvest. A protected plant or two in the tunnel will ensure a steady supply right through the winter, when the most exciting things happening in the ‘outside’ garden are Brussels sprouts, parsnips and kale.

## Preparation

Chard is extremely forgiving and very little preparation is necessary for it to do well. As long as it can get plenty of light and a good supply of moisture, it will produce leaves up to 60cm long in any reasonably fertile soil. It prefers good drainage, but can even grow well on heavier clay soils.

## Sowing

Chard will germinate from 8°C to 25°C but does best at around 21°C. For an early harvest sow singly 0.5-1cm deep in modules in February, or direct into the soil beds during March and April. The ‘seeds’ are actually seed clusters and may produce more than one plant, so thin to the best one or two starts per pot. Chard is not as delicate as many plants and most people should have no trouble successfully transplanting it to its final position in April. For a supply of really striking baby leaves to brighten up spring salads, sow a seed of a ‘ruby’ or ‘rainbow’ variety every 5cm into a drill in the soil beds in early March, and cover with a fleece until the seedlings are up. Pick the baby leaves frequently, and gradually thin out to their final spacings (see below).

## Growing

Plant out at 30cm each way. Chard will do well under a wide range of conditions, rarely bolting in its first year. Feeding is usually not needed. The white variety is slightly less prone to slug damage and slightly more hardy in cold weather.

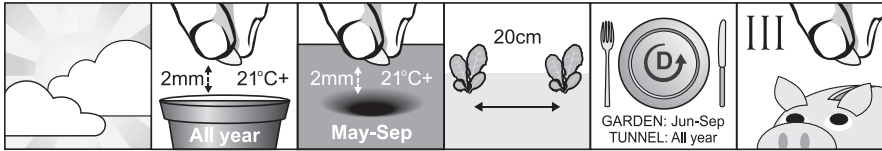
## Harvesting and storage

To avoid damaging the crown, cut leaves off near the base of the plant with a knife as they are needed, rather than picking them. For salad use, harvest the young inner leaves when they are 8cm long or less; for cooking, go for larger leaves and strip out the midrib, which is also edible if chopped but needs a few more minutes’ cooking. Chard can be kept in a plastic bag in the fridge for a few days, but ideally it should be used as fresh as possible. The leaves (but not the stems) can be blanched in boiling water for two minutes, cooled quickly in cold water and then spun or squeezed to remove as much water as possible before freezing in plastic bags or containers.

## Problems

**Slugs** are a problem when the plants are young, but are unlikely to damage them very much later. **Caterpillars** can be a problem in autumn, and unfortunately tend to shelter deep in the centres of the plants where it’s difficult to remove them without damaging the leaves.

## Coriander (cilantro)



Easy and quick to grow, coriander is one of those tastes that immediately takes your mind somewhere sunny. An essential ingredient in salsa, coriander leaves are also excellent with fish and as a tangy garnish on salad. The mature seeds have a completely different, almost lemony flavour, and when ground to a powder are used in soups, curries, stews and even wine. A great addition to the tunnel or a well-lit windowsill, coriander is well worth growing.

Coriander is hardy enough to cope with light frosts, so with some protection it can be grown all year round in the tunnel. The pots of coriander sold as 'growing herbs' in supermarkets have conditioned us to expect coriander to come as baby leaves, but this is purely a solution to growing the herb for market, so don't waste your time making lots of successive sowings trying to copy this at home. Coriander has a tendency to bolt, particularly in spring and early summer, but this is not a problem. Asian chefs know that this merely intensifies the flavour and routinely use tender flowering stems in their cooking.

### Preparation

Coriander likes light but rich, well-aerated soil with good drainage. For the best results it prefers slightly acid conditions, so do not lime.

### Sowing

Sow two or three seeds every 5cm along a shallow (0.5cm) drill, thinning to half, then half again, as they grow. Germination is often poor, but can be improved by gently rubbing to separate the seed halves and soaking in water for 72 hours before sowing. This gives two quick harvests before the remaining plants are ready.

Coriander is also a great container plant for a quick harvest. Scatter a dozen or so seeds on the surface of a 15cm pot that's filled with a free-draining mix of compost and earth. Press them in gently so they're flush with the surface and barely cover with a sprinkling of fine soil. Keep the surface damp at all times in a light, warm place. If there is a tendency for the soil to dry out, cover with a plastic bag until the seeds are up.

### Growing

Coriander has a surprisingly deep taproot and will appreciate the depth a tunnel bed can offer. To fully develop, plants also prefer about 20cm of space between



them. Too much heat will prompt them to bolt early, so if you're growing for leaves, give them a little shade on warm days or plant them between other taller plants. They don't usually need feeding when grown in reasonable soil.

## Harvesting and storage

To extend the harvest, bolting can be delayed by not letting coriander get too many leaves. Pick it frequently, as for lettuce. Alternatively, cut the top third off the stems, leaving the bottom two-thirds to grow again. Pick off any flowers as soon as you see them to keep the energy going into leaf growth.

When you eventually lift the plant, the root can be used as a flavouring for soups and sauces. Cut it with 2cm of greens still attached and wash it well before storing in a plastic bag in the fridge for up to one week, and bruise it with a pestle and mortar before adding it whole to your cooking.

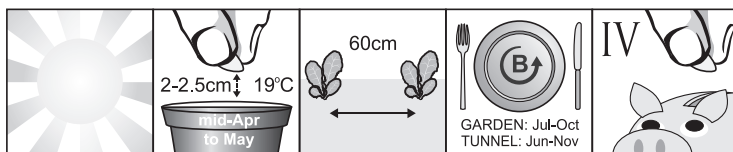
Growing coriander seed for culinary use in the polytunnel is less practical than doing so outside because if given free range the bolting plant tends to sprawl, and the seeds take a long time to mature. Growing one or two plants to save seed is a different matter. These should be given full sun, and their fragrance will quickly become a favourite part of your daily tunnel visits.

Coriander leaves lose their flavour when dried, but can be frozen in small bunches to be crumbled into cooking straight from the freezer. Resist the urge to rinse them before freezing, as the taste suffers.

## Problems

### Aphids.

## Courgette (zucchini)



**Varieties:** 'Green Bush', 'Defender' (F1), 'Verde di Milano'

There are two types of courgette: 'bush' and 'trailing'. Bush is the best type to grow in a polytunnel as the trailing type will tend to invade the space you want to give to other plants.

Tunnel courgettes produce earlier than those outdoors by two to four weeks, and will continue to produce a harvest for a month or more after the ones outside

give up the ghost. They are also more likely to continue production during extended damp or cold weather. They won't, however, survive the winter, and should be taken out in time to use the space for plants that will mature in time for the hungry gap.

## Preparation

Courgettes like deep, rich, porous soil – if you plant one on top of a compost heap it will think it's in heaven. They are hungry plants and can get very big, so in the restricted space of a polytunnel they need to be sited with care. Dig in plenty of well-rotted compost or manure beforehand – and stand well back.

## Sowing

Courgettes are such heavy producers that the general rule is 'plant two and hope one dies', and this is especially true in the polytunnel. Unless you are really fond of courgettes, one plant is plenty, so if you plant two and the second survives it's a bonus; find a spot for it outside.

Soak the seeds overnight and plant two per 8cm or 9cm biodegradable pot, 2-2.5cm deep, and keep them warm (around 19°C) until they are up. Nip out the weaker seedling. Starting seeds in March, while tempting, may be slightly too early as they do not recover well from a check to growth caused by a cold snap or becoming pot-bound; if they get too large for their pots before conditions warm up, your only real option is to pot them on. In most years, sowing in mid-April is early enough.

## Growing

Plant the seedlings out once you are sure there is no further chance of frost, which in a polytunnel is probably near the beginning of May.

Courgettes will need plenty of water, especially if grown in a well-drained situation. With the exception of some F1 varieties (which are not suitable for seed saving), courgettes rely on flying insects for pollination. This is not usually a problem, but if you do not see insect activity in the flowers it will be necessary to hand-pollinate them as for melons (see page 113).

If you do plant more than one courgette, place them at least 60cm apart. The growth will spread to fill any gap, after which the main stem – even in a 'bush' type – will tend to grow away from the planting point in a lush green sprawl. It can only be steered during the first few weeks, after which the plant will be too heavy and fragile to move. Make the most of this opportunity and aim the two plants away from each other, or you will end up with a tangled mess. 'Trailing' varieties can theoretically be trained up strings, but this seldom works in practice; they are just too heavy to climb well, and don't put out as many tendrils as cucumbers and melons.

## Harvesting and storage

The harvest should begin some time in June and should continue until the first tunnel frost, probably in November, provided you keep picking. It's extremely easy to forget to check a plant for a few days during warm weather, and the next time you look it will seem as if an alien Zeppelin has somehow landed in the tunnel. A courgette of perfect picking size can turn into one of these monsters in only a few days, and if you miss one for long, the entire plant stops producing in the belief that it can now focus its energy on developing seeds. This will happen at least once a season for just about everyone who grows courgettes, as the size of the leaves and habit of growth on the central stem means a big fruit can develop where it's difficult to see.

The flowers are edible and can be stuffed or made into fritters, but if they are not removed they go mouldy and this can spread to the fruit. Remove any dying blooms as soon as you can to avoid this, and if necessary keep the fruit off the ground by putting down a light mulch of fresh straw as soon as the plant begins to grow strongly. If the weather stays warm and dry, you will have no trouble harvesting courgette after courgette; if it gets cooler and humid, everything slows down and mould problems are more likely to begin.

Pick courgettes by carefully twisting the fruit until the stem attaching it to the vine snaps. Some people are sensitive to the tiny spines on courgette leaf stems and will get an allergic reaction on their hands unless they wear gloves while handling the plants. The same is true of both cucumbers and melons, which are closely related; also potatoes and other plants. Don't let this happen to you, as it's very irritating indeed.

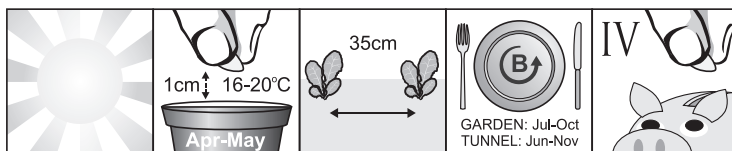
Although they keep for a few days longer in the fridge than at room temperature, courgettes quickly soften and lose their flavour, so to get the most out of them do not hide them in the fridge's salad drawer; leave them out on the counter and use them quickly. They can be dried for storage, and are good to add to soups and stews. There is no need to peel them; just slice them thinly, steam the slices for three minutes, and place them on racks in the sun. When dry enough to store they will be between leathery and brittle. This makes courgette 'crisps', which are delicious eaten dry, but they can also be added to soups and stews, or soaked in warm water for 20 minutes for adding to other dishes. Freezing is less successful because the texture deteriorates, but you can freeze grated courgette if you blanch it in boiling water for ten seconds and then drain it thoroughly before spooning it loosely into muffin tins for the freezer. Cooked courgette freezes just fine, and autumnal dishes such as ratatouille make good winter standbys.

## Problems

**Slugs, mice and powdery mildew.** Spraying the leaves each time you water will help prevent powdery mildew, but if it develops, spraying the plant with bicar-

bonate of soda (see Chapter 7, page 58) or one part milk to ten parts water will help to slow it down and you will still get plenty of fruit. Take off any really badly affected leaves and spray the plant every few days as it grows. Try not to get the leaves of other plants wet in the process.

## Cucumber



**Varieties:** ‘Cumlaude’ (F1), ‘Burpless Tasty Green’ (F1), ‘Tamra’

Cucumbers are hot-weather plants, and need a soil temperature of at least 16°C and preferably 18-20°C for planting, or the seeds may rot. Despite what is often written they are not difficult to grow, but they are very susceptible to chilling injuries. Although there are varieties that will cope with conditions outside in Britain in a reasonable summer, they will all do much better in the cosy environment of the polytunnel, where they will happily grow up a string support (see Chapter 6, page 51) and produce right up to the first frosts. They can be astonishingly prolific, producing more than 20 fruits per plant, and so, as for courgettes, the standard advice is ‘plant two and hope one dies’.

## Preparation

Cucumbers are among the largest and hungriest plants that most tunnel gardeners will grow. Site them right up against the north side of the polytunnel to avoid shading other plants, and enrich the soil by forking in some manure or rich compost as far ahead as you can manage. To avoid the traditional fuss of having to nip out male flowers, choose a female-only F1 hybrid; one with good resistance to mildew that will fruit well into late autumn. When you finally take the plants out, winter peas are an ideal following plant, both in terms of crop rotation and habit.

## Sowing

F1 hybrid cucumber seeds are some of the most expensive seeds you will plant in a vegetable garden, and hate being transplanted because their roots are fragile and brittle. For both these reasons, plant them singly into biodegradable pots (see Chapter 4, page 35). Sow a couple of weeks before the last frost date for your area. Place the seed on its edge, lengthways, 1cm deep so that the first leaves can slide up through the earth with minimum effort. The compost must be nicely damp as the seeds have a very hard casing, but pre-soaking is not necessary unless the seed is past its best. To keep the compost moist put the pots in a

propagator on a warm windowsill or cover them with cling film. If you have a heated propagator, they are a strong candidate for space in it; otherwise move them to an airing cupboard or similar snug spot each night. Once the seeds are up take them out of the propagator and put them in a light, warm place but do not allow the pot to dry out. As soon as daytime temperatures in the tunnel reach 21°C move the seedlings out to a bright area of tunnel staging for a few days, covering with fleece at night to harden off.

Planting direct is also an option when the soil is well warmed. As when planting in a module, seeds should be set on edge 1cm deep (see ‘Growing’, below, for ground preparation). Direct sowing avoids possible damage to roots caused by transplanting and can result in a very vigorous plant, but on the other hand it puts the seedling right there in the bed when it’s at its most vulnerable stage. Unless you are absolutely sure that slugs and mice are not going to visit, you should add some protection by covering with a bottle cloche – see Chapter 10, page 170. By the time the plant is big enough to be getting a little crowded in its bottle, mice will no longer be a problem and slugs will be denied access by the simple copper ring.

## Growing

Because of the risk of chilling damage it is not advisable to transplant the seedlings until you are sure that temperatures will not drop below 15°C. To help things along, ensure that the earth is warm by covering it with a black plastic sheet for a few days before planting out, and be ready to protect the seedlings with a tent of horticultural fleece if temperatures drop below 10°C. If the plant becomes damaged by an unexpected frost, don’t struggle on, as stunted plants rarely fruit well. There is plenty of time to start again.

Mound up the soil by 3-5cm and then plant a seedling into the mound. This helps to keep the stem dry during watering, because although cucumbers are thirsty plants they are also very prone to moulds and mildew. Dig a hole and carefully place the biodegradable pot in its centre, gently filling the gaps around it. Don’t push on the earth to firm it up around the plant – you will almost certainly distort the shape of the pot, damaging roots and thus holding the plant back. Instead, water around the plant to settle the soil. Give the plants an organic liquid feed once a week, or every other watering if you have badly drained soil, until they reach a height of roughly 30cm, and twice a week thereafter.

Cucumbers are big plants, and although they will happily scramble along the ground it is much more efficient to grow them vertically. Traditionally greenhouse cucumbers are grown up a trellis with side-shoots trained horizontally, but they do perfectly well using the unfussy string-support method as described in Chapter 6 (page 51). If you grow in this way the plants can have as many side-shoots as they like, although it’s a good idea to nip off weaker-looking shoots a

couple of leaves out from the main stem. Many gardeners nip all side-shoots out just past the fifth leaf, but having tried both methods – the ‘let ’em all grow’ approach as well as the ‘nip everything out after the fifth leaf’ – we’re not convinced that either method particularly affects the total yield. It simply depends on how tidy you like things.

Keep gently winding the main stem round the string as it grows, and support it by tying it to a loop two or three times along its length. When it reaches the horizontal support wire nip out the growing tip, then allow the topmost two side-shoots to grow unchecked, one in each direction. As they grow, wrap them around the horizontal wire for at least 60cm. Beyond this you can let them continue along the wire if space allows, or tie them securely to the wire and let them hang down, nipping them off before they interfere with plants below or get too close to the ground.

## Harvesting and storage

Cucumbers grown under cover need a fair amount of attention, but they repay it in spades, as at the height of the season you should be taking a ripe fruit several times a week.

As with other cucurbits, leaving fruits on the vine for too long reduces the overall yield, so have a good hunt through the foliage to make sure none get left behind. Cut them from the vine with a sharp knife, and unless they are to be used at once wrap them in cling film and put them in a cool place until needed. Fruit stored in this way near the very end of the season should last until Christmas, or even later. Never store them in the fridge, as the fruits will be damaged by any degree of frosting and will deteriorate much more rapidly.

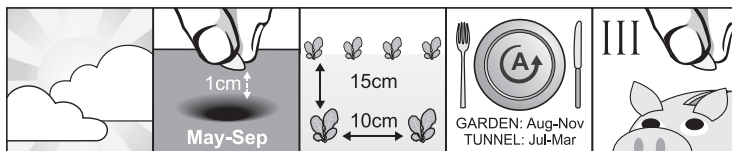
If you find you have grown too many plants, you don’t have to wait for cucumbers to mature to eat them. When they are the size of a large cigar all you have to do is wash them, cut off the stem end (which can be bitter) and serve them whole, one per person, with a savoury dip. Taken small like this most varieties need no peeling. Baby cucumbers are also suitable for pickling in sweetened vinegar, but unless you have chosen a pickling variety you are unlikely to have enough ready at once to make this practical.

## Problems

Very prone to cold damage. **Aphids** (which can spread cucumber mosaic virus), verticillium wilt, **powdery mildew**, **red spider mite** and **slugs**. Newly planted cucumber seedlings are sometimes dug up by **mice** looking for the seed.



## Daikon (mooli)



**Varieties:** ‘Minowase’, ‘Tsukushi Spring Cross’ (F1)

Technically an Asian radish, daikon (also known as mooli) is a large root with a sweet flavour that can be eaten raw or cooked. Most varieties are white-fleshed with a thin white or black skin and can get up to a truly impressive 35cm long and 10cm thick with no loss of flavour or texture. Some varieties (such as ‘Kuromaru’) are hot and peppery, so read seed descriptions carefully. Daikon is a useful vegetable for winter use as it can be left in the ground until needed.

### Preparation

Keep the area well watered, particularly in hot weather, and free of debris. Daikon prefers light, rich soil, so if you are growing on clay you will need to work some compost into the top few inches to give the plants a good start. A variety of daikon called ‘tillage radish’ is used commercially to break through soil pan and improve drainage in clay soils by allowing the large taproot to rot where it stands, leaving a column of organic material. The tops make good compost, but can also be cooked as greens. However, in the context of polytunnels it is worth mentioning that rotting daikon roots do not smell at all appealing, and the odour persists for some weeks.

### Sowing

Sow every 2-3cm in shallow rows 15cm apart, covered with light soil or seed compost, and water in. Do not be tempted to sow earlier than May unless you have a particularly bolt-resistant variety.

### Growing

For large roots to develop the plants must not become crowded, so thin them out to 10cm apart in the row as they grow; the young greens are delicious. Keep the plants well weeded and moist to allow them to grow away from pest damage. Summer-sown daikon takes only six to eight weeks to get big enough to eat as a baby vegetable, but plantings in September and October will not reach maturity until late winter and will then stand until needed.

### Harvesting and storage

Lift with the aid of a garden fork and pull, as you would with parsnips. Once harvested, daikon can be kept in a sealed bag in the fridge for about a week, but the fresh leaves, which are edible and good, do not tolerate refrigeration and



In most greenhouses a single melon plant could mean there wouldn't be much room for anything else. Polytunnels are usually substantially larger. This picture was taken in July 2009.





Courgettes produce flowers that are not only spectacular, they're great dipped in batter and deep-fried.



If you make it difficult for pests to get inside the tunnel you can grow really pristine vegetables – such as this beautiful cabbage. Both this and the courgette above were photographed in August 2009.



The sweetcorn season can start several weeks earlier if you plant a block of them in the polytunnel as well as in an outside bed.





Andy's polytunnel in August 2009.



This suspended shelf doesn't cast a large shadow on the plants below and is a handy place for drying onions.

## Making an onion string



1. Hang a loop of string on a hook and form this shape at the bottom.



2. Put the stem of an onion through the loop and pull it tight.



3. Weave each stem through the strings. Their weight keeps everything tight.



4. Onion strings can get heavy – keep checking the weight.





This mature celeriac, shown in September, began life as a very tiny seedling in March (inset). While celeriac can be harvested from late summer, they can also overwinter to become an important 'hungry gap' crop.





Melons should be supported or their weight may damage the vine. They usually ripen from September to October.



This weighted mesh curtain keeps flying insects out of Andy's polytunnel.



As autumn approaches the overwintering seedlings appear in the tunnel.



A polytunnel provides a warm and sheltered environment that is ideal for aubergines, tomatoes, peppers, cucumbers and melons.





Two late-summer fruits of the polytunnel: fresh, ripe melons and tomatillos.



This picture was taken in mid-November, quite late for peppers. However, the harvest continued for another month.

## A year in the polytunnel

June



Lower-growing varieties on the left (south) side include cauliflower, lettuce and courgette. Opposite are sweetcorn, peas and the strawberry gutter.

July



The sweetcorn cobs are getting fat. A perennial dahlia is blooming but the courgette is mysteriously much smaller – because Mark stepped on it.



August



The sweetcorn has made way for winter plants, revealing cucumbers and melons at the far end. Harvested onions are laid to dry on the tunnel path.

September



Trays of seedlings appear and pak choi can be seen in the foreground. Near the roof is a net hammock in which the last onions are drying.



October



Cloche supports are in place on the left, but the last melons and cucumbers are still growing on the right.

November



Though the plants have died back, the last remaining cucumbers stay fresh on the vine longer than if picked. Cloche supports are in place on both sides.

December



Plants go into a kind of suspended animation in winter, and hardly any growth has taken place since November. This is a good opportunity to clear up.

January



The horticultural fleece clothes in place on a day that saw 5cm of snow on the tunnel and an overnight temperature of  $-18^{\circ}\text{C}$ . How could anything survive?



February



Under the cloches, life – though subdued – continues. The pots of lemongrass in the foreground on the left were given an additional layer of fleece.

March



Plants begin to wake up from the long winter freeze, and new growth begins. Any that weren't mature before the cold will now grow on for several weeks.



April



Everything starts to grow as the weather begins to warm; some of the pak choi have already bolted, and the broad beans get bigger every day.

May



The cloches are finally removed for summer. Plant growth in May is incredible: broad beans are close to the roof and last month's pak choi seedlings are huge.





These rainbow chard would have been killed by the severe frosts outside. Instead they flourished, right through the winter, in the shelter of the polytunnel.

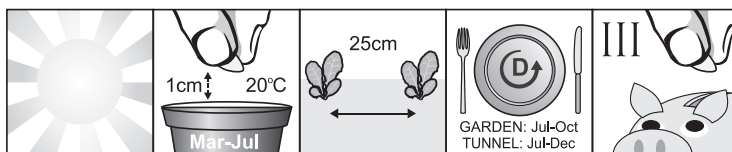
should be used straight away. Wash and peel the roots just before use, although baby roots (popular in salads) just need a quick scrub. Daikon can be shredded or sliced thinly for winter salads but is sweet enough to be eaten like carrot sticks, or it can be sliced or cubed for soups, stews and especially curries, and stays satisfyingly crunchy when stir-fried. Daikon is low in calories even when cooked, but is rich in vitamin C.

Daikon standing in the tunnel over winter tends to bolt once growth gets going again in March, but any remaining plants can be stored further by lifting them and cutting off the tops. Dip the cut ends of the roots in wood ash (not coal ash) and store them in boxes in a cool place, covered in moist compost or sharp sand. Roots for cooking can also be frozen: slice or cube them, and blanch for two minutes in boiling water before open freezing on trays for bagging later.

## Problems

**Flea beetles** can be a problem for early plantings, but autumn plants are usually unaffected. Spring sowings should be covered with fleece before the leaves are even up, and kept nicely moist so that the plants grow strongly until they are big enough to shrug off attack.

## Fennel



### Varieties: 'Colossal'

Florence (or bulbing) fennel is a delicate-looking plant, but is actually quite tough and problem-free. The bulbs have a delicate anise flavour, making them a great addition to salads (as are the young, feathery leaves), soups, stir-fries and fish dishes. Roasted fennel caramelises and develops a wonderful nutty flavour that is not to be missed.

In the tunnel, fennel is more reliable than when grown outdoors and is hardy enough to stand into the early winter with some protection, giving a lovely summery flavour to early winter salads long after outdoor plants have finished. If you are careful about not importing pests, you can also bring fennel plants grown outdoors into the tunnel before the first frosts and heel the roots in, and they will remain in good condition for some weeks.

## Preparation

Many gardeners complain that fennel bolts if put under the slightest stress. This is less of a problem in the polytunnel, but the choice of variety is key. Some varieties are daylight-sensitive and are sown in July for a late-autumn harvest, whereas others are spring-sown for summer. In all cases the chance of premature bolting can be reduced by adding at least 5cm of well-rotted organic material to the soil before planting, which helps to ensure the plant is never short of water. Fennel can be grown on clay soils if sharp sand is added, but prefers something better-drained to do well. Mediterranean in origin, it prefers as much sun as it can get.

## Sowing

Fennel germinates best at temperatures around 20°C and can be sown direct or in modules at a depth of 1cm. Module sowings are best made in biodegradable pots, since fennel hates having its roots disturbed. Germination can be patchy, so sow more than you need and thin later by cutting, rather than pulling, the stems of the unwanted plants.

## Growing

Fennel is a tall plant so be careful about shade when siting it. If planting several, place them about 25cm apart, or at half this for baby bulbs. Keep the plants well watered and weed-free.

## Harvesting and storage

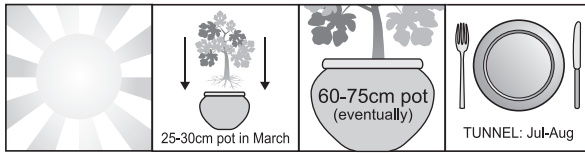
Fennel is ready roughly four months from sowing, but can be taken whenever the bulb is deemed large enough. The bulbs, which some people earth up somewhat to blanch, are ready to harvest from when they are the size of a tennis ball. Some varieties tend to get woody if left to grow larger, particularly if they don't get enough water, but some will stay tender and delicious at 15cm wide or more (see picture in the second colour section).

Fennel bulbs are best used fresh but can be kept for several weeks in a cool, dry place. Young bulbs can also be cut into chunks and blanched for 30 seconds in boiling water before being frozen.

## Problems

**Aphids** and **slugs**. Young plants are best protected from slugs with a bottle cloche or copper ring.

## Fig



**Varieties:** ‘White Marseilles’, ‘Brown Turkey’

Figs range in colour from white to green, purple, brown and even black, and they’ve been growing successfully in the UK since the Romans were here. An ideal container plant, figs do best when their roots are restricted. While they can be grown outside in sheltered and southern areas, they do much better with winter protection. If you container-grow them in a polytunnel they can give up to two harvests a year.

### Preparation

When ordering your fig tree make sure it’s a self-fertile variety. This is extremely important, as the only pollinator (the fig wasp) doesn’t actually live in the UK. ‘Brown Turkey’ is the standard offering through catalogues because it is the best suited to life outdoors, but there are many other varieties. Order a three-year-old tree if possible.

Figs should be started in 25-30cm pots of soil and gradually moved into larger pots (60-75cm or more) as they grow, until the pot is too big to move easily. The soil should have plenty of organic matter mixed with it, but if you’re adding compost, make sure it’s completely rotted down beforehand. The earth should be firm around the tree, with a few centimetres of space between the surface and the top edge of the pot for watering. Once it’s in the pot give the tree a really good watering.

### Growing

Figs need good drainage but don’t like to dry out, and even when they’re dormant during winter the soil should be kept very slightly damp. Following the dormancy of winter, figs begin to grow again in March. Water as needed, increasing the amount as the plant develops. From May, give a liquid feed of tomato fertiliser every other week, alternating with liquid seaweed.

If your tree has a single stem, cut it back to around 20cm. If it’s already developed side-shoots, nip off the growing tips. This encourages side growth in either case. As shoots develop, nip off the tips after five leaves. This is important, as fruit forms only on new shoots; if you don’t encourage new growth you won’t be getting many figs.

If you're going to move the tree to a larger pot, March is the time to do it, just before the new growth gets going. Each time the tree is potted on it should be planted 2-5cm deeper than previously. Once the tree is the right size for your tunnel all you need to do is stop it from becoming pot-bound. Every other year in March, lift the plant and remove about a fifth of the old root ball. Try to take the harder, woody roots rather than softer growth. Add additional compost to the earth and replant. After re-potting, prune the tree back to clear out any dead wood and weak growth, leaving just the thicker branches.

## Harvesting and storage

In most years, figs form on the tree as tiny figlets that remain in place over winter and then ripen the following year. In a good year they can ripen in the same season, late in the summer. Pick figs as they become soft and their stalks bend down. A small opening will appear at the bottom end of the fruit at the same time. When the leaves fall in September remove any remaining fruit larger than a pea, as leaving them behind could delay the next harvest. They will go mouldy and drop off rather than developing into ripe fruit, but will still divert valuable energy from the plant until then. Smaller fruits should be left in place, as they will survive to become the next harvest the following year.

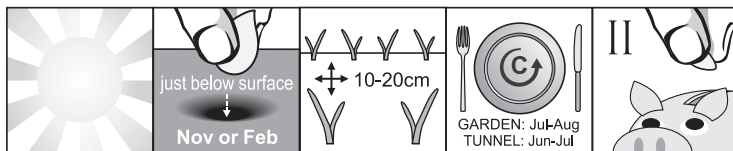
Figs can be dried whole on racks in an airing cupboard, turning every few days until they are leathery, and are delicious eaten like this.

## Problems

**Red spider mite, vine weevil** (only in container plants).

**Birds**, especially blackbirds, will try to harvest your figs before you. If this is a problem, cover the trees with netting well beforehand or net off the tunnel doorways.

## Garlic and elephant garlic



**Varieties (garlic):** 'Sultop', 'Vallelado'

Garlic is a key ingredient in a wide variety of recipes, and has been cultivated for more than three thousand years. Although easy enough to grow outside, garlic in the tunnel is ready a month or so earlier than outdoor plants, and gives bigger bulbs that are less likely to rot or sprout prematurely. Garlic is easy to fit in here and there, where it will also help to discourage pests attracted by the scent of a



particular plant, so it's well worth devoting some tunnel space to it – especially elephant garlic, which is very expensive in the shops.

Elephant garlic looks exactly like normal garlic but is absolutely enormous in comparison: bulbs can weigh up to a kilo. However, its flavour is quite mild and delicate. If added to cooking the taste is easily overwhelmed, so it is best added at the very last minute for a gentle garlicky note. Elephant garlic can be added raw to salads, but is delicious baked whole in its skin: the tip of a clove can then be nipped off and the contents squeezed on to a plate as a delicious paste.

## Preparation

Garlic of all kinds likes light, well-drained and moderately fertile soil in full sun. Some types of garlic are hardier than others, so if you are planting in November (the best bet for really big bulbs), choose an overwintering variety.

## Sowing

Garlic prefers an early start, so try to plant cloves in early November for overwintering, or in mid-February.

If you don't manage to plant them in November, hardy varieties can be planted throughout the winter and into early spring. Planting a few in the tunnel in January or February should still give you a good harvest, so long as the weather is cold enough for root development.

## Growing

Elephant garlic needs a period of roughly a month at temperatures below 10°C to develop a sound root structure. If this doesn't happen, the plant is more likely to grow into a single, huge bulb (known as a 'round') rather than a proper head made up of cloves. If this happens it's not a complete disaster, as if you plant the round the following year you will get a really big head made up of huge cloves.

'Normal' garlic should be planted at 10cm apart each way; elephant garlic at 20cm. For both varieties, plant so that just the tip of each clove is showing above the soil. Use a trowel – don't just push them into the earth as this will compact the soil underneath them, just where the roots will be trying to grow. Give a sprinkling of bonemeal after planting, and water with comfrey tea once a week (see Chapter 11, page 178). When the bulbs start to swell, water with a liquid tomato feed instead until the leaves begin to die back, at which time watering should gradually taper off (see below).

If any flower stalks (or 'scapes') appear, remove them immediately, or the energy of the plant will go towards developing the flower instead of the cloves. Scapes emerge from the centre of the plant, grow quickly, and have a distinctive pointed 'cap' that will eventually become the flower if left alone. Garlic scapes are delicious,

giving all the flavour of garlic without the hot ‘bite’, and can be used to make superb pesto.

If the earth isn’t allowed to dry out close to harvesting, the cloves will just start to sprout again – and instead of a nice solid bulb you’ll end up with a tight bunch of tiny garlic plants. Beginning in June, reduce the amount of water the plants are given. The leaves will begin to die back as the cloves develop and the plants are usually ready to harvest any time from mid-June to early July. The stems of elephant garlic will remain green, while ‘normal’ garlic types will fade and become much lighter. If you see slugs around the base of the plants, it can be an indication that the cloves are starting to grow out again and the plant should be harvested immediately.

## Harvesting and storage

When most of the foliage has turned brown, harvest garlic by loosening the soil under the bulbs with a hand fork and lift the plant gently, leaving it on the ground for a few hours to let the soil on the roots dry out so that it can be tapped off. ‘Wet’ garlic (that is, straight from the ground) has a terrific flavour, but garlic stores extremely well if it is cured first by leaving it in the sun with good air circulation for two or three weeks, as for onions (see page 116). Plait the stems together to make a traditional garlic string, and hang it in a cool, dry place where it will keep until the following spring.

Elephant garlic usually produces small, round bulblets roughly 1-1.5cm across, flattened on one side, as well as the big cloves. Often there are several of these clinging to the larger head below the soil surface. They are encased in a tough, light brown skin. If you want to grow from them, it’s best to plant them immediately. If you have to wait, snip off the very top of the bulblet’s tough outer skin to help it grow, as the skin will become even harder over time.

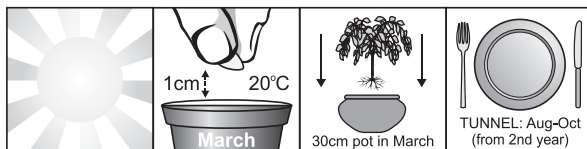
Elephant garlic can be cured as described for onions (see page 116), but needs a little longer to dry out properly. Stored in a cool, dry place, it will keep right through to the following spring, but the biggest and best cloves should be replanted in November.

## Problems

**Leek rust, onion fly and eelworms.**

Rust is particularly regarded as being a disease of garlic, although it can affect any allium species. Don’t use bulbs from affected plants as seed for the following year, don’t grow alliums of any kind for at least three years in a bed that has been infected, and destroy any volunteer plants that come up in that bed during this time.

## Goji berries (wolf berries)



Goji (pronounced go-jee) berries are expensive to buy in the shops but easy to grow yourself, and are very hardy after their first year. They are credited with an impressive list of health benefits, and are high in a selection of vitamins, minerals and antioxidants. Best of all, they do very well in pots.

### Preparation

Goji berries are perennial and once established are very easy to care for. They will grow in a wide variety of soils (unless too wet), don't need a lot of feeding, are somewhat drought-tolerant and will even grow in partial shade, though they prefer full sun. They make ideal container plants and should certainly be grown in the shelter of a polytunnel (or greenhouse) in their first year, after which they could be moved to a sheltered spot outside. Or, of course, they can stay in the tunnel, where they will give heavier yields than outside. Ideally they prefer a rich, well-drained loam into which some very well-rotted compost has been added to help moisture retention.

### Sowing

Goji seeds germinate best at around 20°C and should be sown 1cm deep in 10cm pots. Germination is patchy but should take around two weeks. Young plants are also commercially available, either bare-rooted or already growing in a pot.

**Note:** In April 2008 it became apparent that bare-rooted goji berry plants were being imported from China to Holland and from there to the UK, bypassing the normal inspection channels. Some of these plants carried the goji gall mite, a pest to which goji berries are prone in their natural homelands. This is not indigenous to the UK but if introduced may spread to other plants in your garden, so it is important to always buy goji plants from a reputable source.

### Growing

If you do buy a bare-rooted plant, plant it – as soon as it arrives – in a 30cm pot. Do not add any bonemeal, fertiliser, etc. to the earth when planting, as it will be far too rich and may damage or even kill the roots. Water the plant in, and add a mulch to the surface. Leaves should appear within three weeks.

Goji is invasive, so we do *not* recommend planting it directly in the tunnel. Pot the plant on only when it needs it, and never into anything much larger than that in which it was previously growing, or the roots can become waterlogged. If you

are planting into the soil beds, however, leave about 1 metre between bushes. Left to themselves, they can grow into thick bushes 2-3 metres tall and put out vines that reach even further. Regular pruning is therefore required to form them into smaller, compact bushes that will produce loads of berries.

Goji berry plants should not be allowed to get dry, especially in their first year. It's better to give a heavy watering on a weekly basis rather than a light sprinkle every day or so.

The plants should be cut back each year in spring just as growth begins. This will encourage a dense habit, and some of the cuttings can be rooted for new plants.

## Harvesting and storage

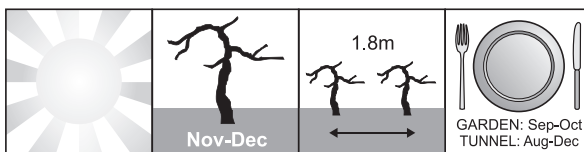
The first fruit is produced in the autumn of the year following sowing and every year thereafter, as the small white and/or purple flowers die back. Berry production is then continuous until stopped by the first frosts. Each year the plant will produce more berries, so don't be disappointed if your first harvest isn't as big as you were hoping. The next one should be better.

If handled too much, the berries oxidise and turn black, so they are often shaken from the plant rather than being picked. They can be eaten either fresh or dried.

## Problems

Goji gall mites, introduced on infected plants. These can spread to peppers, aubergines and more – so make sure that your plants have been through the appropriate DEFRA inspection before you buy. Otherwise, in the UK they are remarkably disease- and pest-free.

## Grapes



**Varieties:** ‘Black Hamburg’ (black dessert grape), ‘Chasellas’ (green dessert grape)

Can we grow grapes in the UK? The answer to that question is at Hampton Court, home to the ‘Great Vine’, the oldest and biggest grapevine in the world. Planted in 1768 by Lancelot ‘Capability’ Brown, the creator of so many of the landscapes surrounding our nation’s stately homes, it’s still going strong and annually provides around 600lb of delicious dessert grapes. If you visit at the right time of

year, you can buy some; alternatively, you can buy a rooted cutting from it and grow your own.

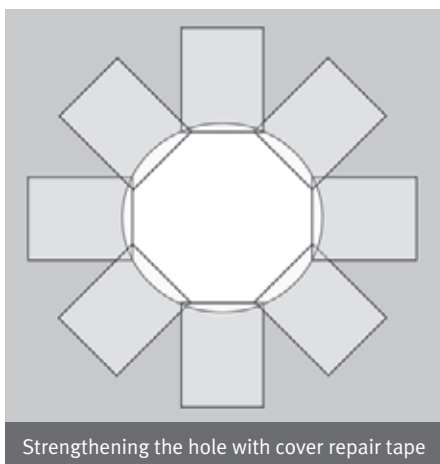
Although some varieties of grape are hardy enough to grow outside in the UK, all of them are more successful if grown under cover, provided that they can be looked after properly. This means spending time watering, feeding, pruning, training and ventilating, but so long as you are willing to put in the work, it is quite possible to have a good harvest of your own grapes year after year. Be clear whether you want to buy either a ‘dessert’ (or ‘table’) variety for eating, or a variety that’s better suited to wine making. Whichever you choose, make sure it has good disease resistance and will ripen well without heat.

## Preparation

Vine roots need to stay cool, whereas above ground the vines need warmth and sunlight to do well. This is why vines that will not be container-grown are often planted just outside a greenhouse and then trained to grow inside – the Great Vine is an example of just how well this works. In the context of a polytunnel where the cover is secured at ground level with a base rail, you can dig a trench under the rail and position the plant so that its roots are at least partially outside, then backfill the trench with light gravel.

Polytunnels where the cover is trenched in are trickier, because you have to provide a hole in the cover to pass the young plant through. To minimise the risk of tears starting at the hole, make it circular using a sharp Stanley or craft knife, and use overlapping strips of polytunnel repair tape to reinforce the edges (see diagram). Work fairly close to ground level (say 10cm), and when you next replace your cover, use a base rail rather than a trench to secure it – any good supplier will help you work out what you need. On the grapevine side, the base rail will probably still need to be a little higher than ground level, but this is not

a problem: don’t trim off the excess film below the rail but bury it in a shallow trench instead, so that the tunnel is still held down firmly by the weight of the soil. You will need to cut a slit in the ‘skirt’ where the vine passes through (again, reinforce the top of the cut with repair tape), but the base rail will prevent the wind getting to the cut. If you decide this is not for you, you can plant inside, provided you insulate the roots from heat with a heavy mulch of rocks or other material that can store a lot of warmth and provide lots of water.



Strengthening the hole with cover repair tape



The earth should be prepared as deeply as possible, as once the vine is in, it isn't going to be moved. If the ground is waterlogged you will need to dig a large hole at least 75cm deep and put a 15cm layer of brick rubble or gravel in the base to aid drainage, and this probably means waiting until the next time the tunnel cover is replaced. Add some well-rotted manure or compost and a handful of a good general fertiliser to the soil in the planting hole to get the plant off to a good start. Vines can also be successfully grown in large (at least 30cm) pots of free-draining loam-based compost (see *How to Make and Use Compost*, in the Resources section, for how to make organic growing media at home). As their roots are restricted they form less-vigorous plants suitable for smaller tunnels, and can also be trained more easily to suit wheelchair gardeners. Container plants should not be allowed to fruit in their first couple of years.

## Sowing

Grapes are always sold as rooted pot-grown plants and should be planted in November or December, when they can be pruned without bleeding. Plant them slightly lower than they were in the pot, teasing the roots out to spread them around the planting hole, firm the ground down well, and water in. If you want to grow the vine in a container, plant it straight into its final pot at the original level and cover the root ball with earth.

## Growing

Training the vine is extremely important during the first few years of growth. Create a solid framework of horizontal wires to which you can tie the side branches so that the whole plant faces the sun. Don't tie the branches too tightly, as they expand as they grow.

Grapevines are very vigorous, so put a layer of compost and a sprinkling of a balanced organic fertiliser around the base of the plant early each spring. In the case of container-grown plants, gently remove the top 10-15cm of earth and replace it with fresh compost and again top-dress with a general fertiliser. The vines should be given a liquid tomato feed every three weeks once they are in full leaf, increasing to weekly once the fruit sets. As soon as the grapes begin to colour, stop feeding.

At the end of each growing season it's vital that the vine is pruned in order to encourage the right sort of growth the following year. There are many ways of doing this, but a general rule is to cut all the new shoots back by at least 25 per cent.

## Harvesting and storage

In the first year the vine is unlikely to bear any fruit at all, and will produce only a few grapes in year two. You should get your first decent harvest in the third year, as long as you provide adequate ventilation (see 'Problems', right). After that, the yield will get bigger every year.

In the second year, leave the fruit on the vine but remove half to two-thirds of the grapes in each bunch. In the third year, remove between a quarter and a third of them; from then on, it isn't necessary to remove any unless they are poor. It's a good idea to clip out any large leaves that are shading the grapes, as doing so will speed up the ripening process.

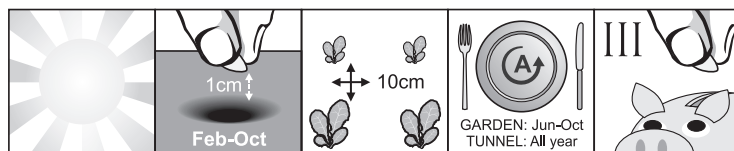
Seedless grapes can be dried whole to make your own raisins, provided that you nick them with a sharp knife first, or blanch them briefly to crack the skins.

Frozen grapes make a decadent snack for children – freeze seedless varieties whole, but seeded grapes must be cut in half and de-seeded first. To peel frozen grapes, dip them one at a time into a glass of cold water while they are still frozen hard, and the skin will come right off.

## Problems

Vines are prone to **red spider mites**, which love a dry, warm environment, so until the grapes begin to form it's a good idea to mist the entire plant regularly to deter them. However, grapes are very prone to **botrytis**, and high humidity will help to spread it extremely fast, so it is absolutely vital that you stop misting and provide plenty of ventilation during the fruiting season.

## Kohlrabi



**Varieties:** 'Azur Star', 'Lanro'

Kohlrabi is not a traditional crop in the UK, but it really deserves to be, given how delicious and easy to grow it is. Popular in India, parts of Asia and throughout Central Europe, kohlrabi is one of the hardiest of vegetables, with plants coping with temperatures as low as -3°C. It looks bizarre – an elevated spherical 'bulb' with leaf stems radiating outwards in a sputnik-like manner – and if you choose one of the striking violet or purple varieties it can be a real show-stopper for visitors.

Kohlrabi bulb (actually a swollen stem section) has a sweet taste all of its own that could be described a mild, nutty mixture of turnip and celery. It can be stir-fried (providing a water-chestnut sort of crunch even when cooked this way), steamed, sautéed or used as an ingredient in soups, stews or curries, but it really comes into its own when eaten raw, grated or cut into batons as part of a salad.

In the polytunnel it enjoys a longer season than outdoors but, most importantly, it grows to maturity in seven or eight weeks, making it an ideal catch crop between slower-growing plants, such as tomatoes or aubergines, at the beginning and the end of the season.

## Preparation

Kohlrabi needs a rich, moist soil but does not root deeply. A month or two before sowing, top dress the bed with compost, fork it gently into the top few inches and water in well. A week or so later, check the pH of the soil and correct it with a dusting of lime if necessary – it should ideally be 6.5 to 7.0 but certainly no lower than 6.

## Sowing

Sow thinly 1cm deep in drills 20cm apart, thinning the plants to around 10cm apart as soon as they are large enough to handle. Keep the soil moist but not waterlogged, and protect from pests. If slugs are a problem in your tunnel don't sow direct; use 3cm modules and transplant to 10cm apart in the rows once the plants have five leaves.

To maintain a continuous supply of kohlrabi, sow every three or four weeks from early spring to early autumn, but be aware that it prefers cool conditions and grows quite slowly during the summer, so it may be best not to sow any between May and August.

## Growing

As the plants begin to plump up, harvest every other plant as it reaches golf-ball size and leave the others to grow on. As with many vegetables, kohlrabi is at its finest and tenderest if harvested small. Over winter, plants will need protection with fleece to cope with temperatures below -3°C.

## Harvesting and storage

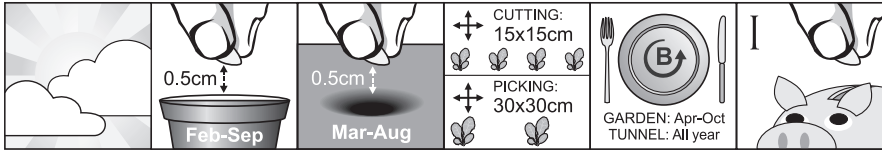
Take the remaining plants by the time they reach the size of a tennis ball, as they have a tendency towards woodiness as they get larger. Lift the whole plant, or, if you are growing between other plants and don't wish to disturb their roots, just cut the stem at ground level. If you are not using it immediately the bulb keeps better with the roots and leaves removed; the leaves are edible and good, and should be treated like kale. Once trimmed, kohlrabi bulbs will keep for a month or more in a sealed bag in the fridge, but autumn or winter harvests will store even better in a cool garage or outbuilding, where they should be set out on racks to allow good air circulation.

## Problems

Kohlrabi matures so quickly that once plants are established they rarely have any problems, but keep an eye on them and remove any caterpillars or slugs.

Poor or obviously struggling plants should be removed immediately to prevent them passing problems on to other plants, as they are seldom worth harvesting.

## Lettuce



**Varieties:** ‘Paris Island’, ‘Rouge d’Hiver’, ‘Webbs’

Although most people think of lettuce as a summer vegetable, it is quite possible, given a suitable mix of varieties and a bit of protection, to harvest fresh lettuce all year round. A crisp and tender salad in the dark days of late January can be every bit as tasty as in the warmth of summer – and it will be far more appreciated. Winter-hardy outdoor varieties do exist, but suffer from the weather and the effects of predation much more than tunnel-grown specimens; there really is no comparison.

### Preparation

Lettuce will tolerate some shading and thus can be sown around larger plants which are due for removal, but if this goes on for too long the seedlings will become leggy and prone to mildew. If in doubt, sow into modules. What lettuce will not tolerate is dryness, so if the bed is prone to drying out, fork a good dressing of compost into the top few inches of soil and keep it well watered.

There are four main types of lettuce: loose leaf, butterhead, iceberg (or ‘crisp’), and cos, each providing its own range of flavours and textures. The choice is largely one of personal taste, but it is worth mentioning that head-forming lettuces are much more likely to act as ‘slug hotels’ than more open types. Butterheads are generally hardiest to use as a crop to eat during the winter, although cos and loose-leaf types specially bred for winter will do just fine. If you have a favourite variety that isn’t listed as winter-hardy, there’s no harm in trying to grow it under fleece; many of them will hang on grimly and recover once the weather eases, replacing their tatty winter leaves with sweet new growth around the start of March, although most will bolt soon afterwards. Iceberg varieties are not cold-hardy and are more prone to tip burn (a result of uneven watering in summer) and are thus most suitable for spring and autumn use.

### Sowing

Slugs are extremely fond of newly emerged lettuce seedlings, so sow them barely covered with seedling compost in 4cm modules or small pots (this can even be

done in January if you put them in a propagator) and keep in a slug-free location until they are large enough to transplant. Make sure the modules are never allowed to dry out.

If you are confident that slugs are unlikely to be a problem, sowing direct allows you to eat the thinnings before the plants would otherwise be ready. Draw shallow drills 15cm apart (for picking) or 30cm apart (for cutting) and water them before sowing the seed thinly, then barely cover with fine seedling compost and give just a sprinkling of water to settle it. People sometimes report poor germination from summer sowings, but this is usually because the surface of the soil has dried out. In hot, dry weather it is better to make the drills a little deeper – perhaps up to 1cm. Thin the seedlings to the required spacing once they are big enough to harvest as baby leaves.

## Growing

Keep the area around the lettuces free of competing growth and any debris to minimise hiding places for slugs and other pests. Always keep the soil moist; a good soak every few days is better than frequent light watering, as the latter suits slugs just as well as it does lettuces. If you want to give them a boost, an occasional treat with an organic seaweed-based foliar feed such as SM3 (Chase Organics, available from The Organic Gardening Catalogue – see Resources section) will do the trick.

In very cold weather frost damage can also be a problem, so choose your varieties carefully. Even frost-hardy varieties benefit from the added protection of a horticultural fleece during cold snaps; for best results, use hoops or other supports to keep the fleece off the leaves (see Chapter 7, page 59).

## Harvesting and storage

There are two ways of harvesting lettuce. The first, favoured by commercial growers because it is practical on a large scale, is to cut off a whole mature head of lettuce just above ground level. The second is successive picking, which is perfectly practical provided that you live within easy reach of your plot, although it is not suitable for lettuces specially bred to produce tight heads (notably icebergs). This method of harvesting provides higher yields per plant with much less damage from slugs and moulds, and also extends the harvest over a longer period. This means there is no need to sow so often: three or four sowings should see you through the whole year. This type of harvesting is sometimes referred to as ‘cut and come again’, but this is a misnomer since the plants can recover from the ragged breaks of picking much more easily than they can from the clean cuts made with a knife.

Instead of cutting a single mature head of lettuce for your salad, pick the outer leaves from several plants, making sure you leave at least four young leaves



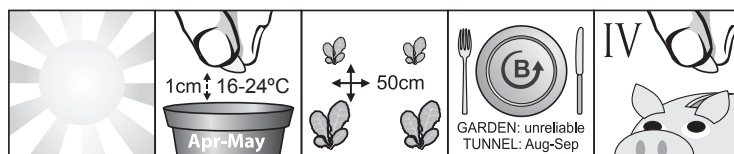
untouched so that the lettuce can grow again. The first time you do this the leaves may look a little sad, but the plant will respond by accelerating its growth, producing lots of tender adolescent leaves. If you get the number of plants right (this depends on the amount of lettuce that you eat, and the time of year) they will be just perfect the next time you pick, and you will be able to harvest from each one time and time again over a long period. The only thing that brings the harvest to an end is when the plant finally decides to bolt. This can happen if the bed dries out too much or if the plants are allowed to keep a little too much leaf, but eventually it happens anyway. Once the flower stem begins to form and the centre of the lettuce stretches upwards, cut the plant at ground level and inspect the cut surface as part of your regular slug patrols – they love to graze on the stumps.

Lettuce leaves deteriorate quickly once picked unless they are kept cool and moist. Rinse and put them in a sealed plastic bag and store in the salad compartment of the fridge, where they will keep crisp for three or four days. For whole heads of lettuce, resist the urge to break them up for washing; store them whole, as above, and break them up and wash just before eating. Breaking or tearing the leaves is better than cutting them as contact with a metal knife can cause browning.

## Problems

**Slugs, moulds and lettuce root aphids.** Keep some open space between plants and make sure all debris is removed regularly.

## Melon and watermelon



**Varieties:** ‘Collective Farm Woman’, ‘Minnesota Midget’

Melons have to be the number-one boasting crop for greenhouse and polytunnel growers alike, all the more so because they have a reputation for being difficult to grow. This is largely unjustified, since varieties have come a long way since the days of heated Victorian glasshouses. However, you still can’t really grow melons outdoors in the UK. Even very experienced gardeners will get only a few fruit, and only then in the longest and driest of British summers. Happily, it’s a different story under cover. The scent of a ripening melon on the vine is one of the gardener’s best-kept secrets, and the fruit one of the best rewards. A single melon can perfume the entire tunnel, reminding you of the pleasure to come.

Although melons need a fair bit of attention, most of the complicated and space-hungry support arrangements so often mentioned for melons in gardening books look beautiful but are not truly necessary; the only thing that is more-or-less mandatory is a reasonable summer. Don't let any of this put you off having a go – grown vertically, melons don't take much more room than a tomato plant, so what have you got to lose?

Seed merchants are often very generous in their descriptions of the conditions needed for melon varieties, so beware. Chose an early (the earlier the better) variety of cantaloupe melon such as 'Troubadour' for the best chances of success. Some musk (or 'netted') melons are also suitable for polytunnels but usually need heat, as do winter melons including honeydew.

## Preparation

Melons need rich soil with plenty of nutrients, particularly near the surface where they develop a substantial root mat. Apply a top dressing of 7cm of good compost or manure to the bed around the same time that you sow the seeds, and keep it moist but not waterlogged.

## Sowing

Unlike with many other plants, it's a bad idea to start melons off too early, since any check to their growth stunts them, damaging your chances of a worthwhile harvest. You can, however, gain a few extra weeks by starting them off in pots indoors, which can make all the difference to your harvest. Wait until the weather settles down in April or May and sow one seed per pot, 1cm deep, placing the seed on its edge to give it the best chance of slipping cleanly out of the compost. We recommend using 8cm or 9cm biodegradable pots for sowing because melons dislike being transplanted, especially when they are small. Place the pots in a propagator at around 21°C or place them on a sunny windowsill covered with plastic to stop them drying out, removing it once the seedlings emerge.

## Growing

The seedlings should not be planted in the beds until the settled warm weather arrives in May or early June, so they will probably need to be re-potted at least once, and may already be quite large or even flowering. This is not a problem for them and is far preferable to an uncertain start, particularly if there are slugs about.

By far the simplest and most space-efficient means of growing melons is to string-train them as described in Chapter 6 (page 51). The weight of fruit can be quite substantial, so there mustn't be any doubt about the strength of your top wire; unless you have used steel cable, attach the growing string directly to a crop bar or a clamp instead. The growing string doesn't have to be absolutely vertical, so long as it cannot slip at the top.

When you plant the young melons into the bed, sprinkle a little slow-release organic fertiliser into the planting hole, and make sure that the soil level of the root ball ends up 5cm or so higher than the surrounding soil. This prevents the base of the stem from getting waterlogged (an invitation to slugs and woodlice). As the main stem grows upwards, wrap it gently around the string until it reaches the top. Secure it to the crop bar or top wire with a loose loop of twine and nip out the growing point. It is also a good idea to secure the main stem to anchor loops on the growing string in a couple of places. The plants sometimes split to produce two main stems, and it is usually best to make an early decision as to which to nip out, otherwise things can get a little crowded, causing poor air circulation and a higher risk of moulds.

While the main stem is growing, the plant will begin to grow side-shoots, and once the plant is ‘topped’ these can get very vigorous indeed, requiring attention two or three times a week. Flowering will start well before this, but do not worry that all the first flowers are male; the females will soon follow. These have a swelling at the base like a baby melon, and once the first ones appear you will immediately see the difference. In heated greenhouses melons were traditionally hand-pollinated by transferring pollen from the male flowers to the females with an absolutely dry paint brush, but if you have plenty of flying insects in your tunnel there is usually no need to bother. If you do decide to intervene, a less fussy way of hand-pollinating is to remove the petals from a fully open male flower and touch it to the centre of a female flower. To make absolutely sure, repeat the process with a second male flower. Once the female flower base has swollen to the size of a marble without discolouring, you will know it has ‘set’.

The only ‘trick’ to growing melons successfully in our relatively short growing season is the use of thinning and pruning to make sure that the plant concentrates all its energy on an appropriate number of fruits. Rather than letting lots of fruit set and hoping for a spectacular summer to ripen them, stick to no more than three per plant. This should give you a reliable harvest, and if the summer does turn out to be a good one they will simply grow bigger and sweeter.

## Harvesting and storage

With most varieties of cantaloupe and musk melon you will be alerted to early ripening by the wonderful aroma, which on hot days will fill the tunnel with its unmistakable sweetness, but the chances are that you will be keeping an anxious watch on the fruits for a while before that. Visual clues of ripening differ between varieties, but the easiest way to test a plump melon for ripeness is to press gently at the blossom end. If the fruit gives a little it is almost ready to take. Cut the fruit from the plant and keep it in a warm room for a few days before eating. To enjoy the fruit absolutely ripe, however, you can leave it until it is ready to drop, trusting to the net bags to stop this from actually happening. Small cracks form around the point at which the stem meets the fruit, and about a week later the melon will

be fully and aromatically ripe, and ready to eat straight away. Once the last fruit has ripened, remove the plant immediately for composting.

### Tips for success with melons

Take off all side-shoots until the main stem reaches 50cm. This keeps fruit off the ground, lets you keep an eye on the bottom of the main stem and lets more light reach neighbouring plants (a radish or two works wonders to distract incoming slugs).

Not every side-shoot has to have a fruit on it; to stagger the harvest a little, it is better if they don't all set at once. Aim for one near the bottom of the plant, one near the top, and one somewhere in between.

As the fruit sets, nip out each side-shoot two leaves past the first baby melon and remove any other fruitlets; or, if you don't want a fruit on a side-shoot, remove them as they appear and limit the shoot to five leaves.

Later on in the season offshoots may appear from the side-shoots, and these should be removed as soon as you see them.

From planting until the fruits begin to ripen, water the bed regularly – but to avoid fungal diseases try not to get the leaves or stems wet. The soil should be moist but never waterlogged, which tends to split the developing fruit.

When a fruit is roughly the size of a tennis ball it should be supported with a net bag, or the weight may damage the plant. The nets used for commercial fruit are perfect; just slip them over the fruits and secure them to the handiest loop on the growing string. The bag may need to be loosened once or twice as the fruit swells. When ripening begins, decrease watering and increase ventilation to reduce the risk of fungi and moulds.

If you are uncertain about the fertility of your tunnel soil, give a phosphate feed once or twice while the fruits are swelling, but in good soil properly dressed with rich compost this will not be necessary.

Judging the ripeness of watermelons is more difficult, since they stay firm until over-ripe. As soon as the tendrils near the fruit stem turn yellow and die back, give the fruit a sharp rap with your knuckle. If it sounds hollow rather than full, it is worth cutting one fruit to check. Cut with a sharp knife, taking at least 2cm of stem to reduce bleeding and store in a cool place.

Melons can be kept for only a few days before they go mouldy. You can stretch this to a week or so by refrigerating harvested melons whole. Any cut pieces should be wrapped in cling film or placed in plastic bags and chilled quickly. The only long-term storage option is to cut the flesh into cubes, or into balls using an ice-cream scoop, and freeze them on baking trays. Once they are fully frozen, transfer them to sealed plastic bags, where they will keep for about a year.

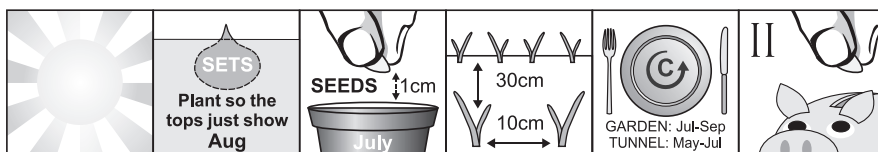
The texture of the flesh deteriorates a little in the freezing process, so it is best to serve the melon when it is only just defrosted. Don't be tempted to use overripe fruit for this purpose as it thaws to mush.

## Problems

**Mice, slugs and woodlice.** A bottle cloche or a bottle ring (see Chapter 10, page 170) will defend the plant until it's growing away strongly.

**Moulds** are a perennial problem with cucurbits, so keep the leaves and stems dry when watering and make sure that the inside surface of your cover is washed with a soap-based organic cleaner each spring. Spent male flowers should be removed as soon as they shrivel up, and not allowed to lie on the leaves.

## Onion, bulbing



**Varieties:** 'Senshyu Yellow', 'Electric' (Red)

Onions have been part of our diet since the Bronze Age and are a vital ingredient of innumerable dishes. The bulk of the crop is grown outside and left to ripen or 'cure' in the late summer sun, although the polytunnel is a wonderful place for this if the weather won't play ball. By the end of the spring, however, rising air temperatures will cause the remainder of the stored bulbs to sprout or rot, leaving an awkward 'onion gap' of two months or so between the end of the old harvest and the beginning of the new.

Traditionally this gap was filled by spring onions, but these are milder-flavoured and not as versatile as bulbing onions. Early overwintering onion types (often called 'Japanese' onions, since this is where they were first developed) are now available, but, although these can be used to shrink the onion gap, winter losses can be high and since they typically do not ripen until July, it does not solve the problem entirely. Overwintering early onions in the polytunnel means fewer losses and bigger, better bulbs – which is why many exhibition growers use polytunnels.

The great dilemma for onion growers is whether to grow from seed or sets (immature bulbs). Sets are comparatively expensive but more reliable; seeds take longer and are more work but give better bulbs that keep longer.



## Preparation

Onions prefer rich, light soil, although they will cope with any adequately drained soil provided that there is a reasonable tilth for their shallow roots. They also like quite a bit of nitrogen, so top dress the bed with manure or compost in May. So long as you do some top watering and there are plenty of worms around, the soil should be ready by July. If not, or if you have to add the organic matter later, work it into the soil with a garden fork, rake the bed over, tamp it down with the back of the rake and top water it well for at least two weeks before planting.

### *Sowing sets*

Plant at 10cm intervals in rows (for easy weeding) 30cm apart, with the tips just above the soil surface (make sure the rooted end is at the bottom). If you plan to lift the bulbs earlier than late May, you can sow them as little as 5cm apart.

### *Sowing seeds*

Sow two seeds per small module, and remove the weaker seedling if both come up. The seedlings are delicate and slow to get started, so delay moving them to the soil beds until they are 10cm tall. Space them as for sets, but watch out for slugs until they are established.

## Growing

Onions compete poorly for light, so keep them thoroughly weed-free. If they dry out it can affect both their flavour and the eventual yield; a mulch of grass clippings or other organic matter can be used (but keep an eye out for woodlice and slugs) to suppress weeds and reduce moisture loss from the soil. Keep them well watered until they show signs of ripening (when the tops are beginning to yellow) and then reduce irrigation. Any onions with a hard flower stem should be harvested immediately, as the bulbs will not grow any larger and will not store well.

## Harvesting and storage

For fully mature onions, leave the plants until the leaves start to turn yellow and fall over, but provided that you don't mind smaller bulbs, you can trigger early ripening by partially easing them out of the ground with a garden fork, folding the necks over firmly, and reducing watering straight away. After a week or two like this the onions will be sweet enough to cook with, but if you intend to store them they will need to 'cure'. Lift the plants right out of the ground and gently tap away the soil from the roots. Then move them to a sunny spot with good air circulation; a suspended shelf in your tunnel is ideal. After a couple of days any remaining earth around the roots will have dried and can be rubbed off by hand. Curing time depends on temperature and humidity but is usually two or three weeks. To see if they are ready, roll the neck of one or two of the larger specimens firmly between finger and thumb. They should be dry and papery with no hint of squishiness.

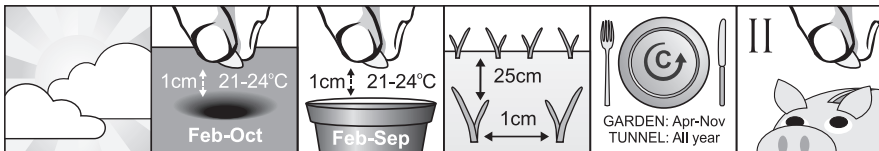
Mature bulbs can be braided into onion ropes for storage, or the top leaves can be removed (leaving a stub of 5cm or so) and the bulbs placed in open mesh bags. Check them regularly and remove any that show signs of deterioration. Whichever method you use, the onions will keep well in a cold, dry place until things warm up in March, when even the best specimens will attempt to sprout.

Any bulbs that have started to sprout (as well as any bulbs that didn't cure properly at harvest time) can be peeled, sliced and frozen – there is no need to blanch them. Alternatively, peel, cut in half lengthways and slice them for drying in a dehydrator (solar or electric) until they are brittle. Dried onions are much sweeter than raw ones and make a delicious addition to stews and fresh breads – but are also a tasty treat just as they are.

## Problems

**Moulds, thrips, white rot, botrytis and slugs.**

## Onion, spring



**Varieties:** 'Ramrod', 'White Lisbon'

Also known as salad onion or scallions, this non-bulbing plant was traditionally used in spring and early summer before the first bulbing onions were ready. In the context of a polytunnel spring onions are tremendously useful to pop in wherever there is a gap, and, although they need good light at the seedling stage, later they will tolerate some shade and stand for a long time without deteriorating. Fresh spring onions from the garden have a green and pungent taste that is a world away from the limp efforts you will find in the supermarket.

## Preparation

Spring onions need a light moist soil to germinate but are less fussy than bulbing onions; even on heavy soils they will cope if sown directly into a top dressing of compost, provided it is kept moist.

## Sowing

Mark out drills 25cm apart, and sow the seed thinly 1cm deep.

For 'spot' plantings of spring onions, sow a pinch of seeds (eight to ten) into 5cm modules and cover with 1cm of seed compost, keeping moist at all times. Once

roots show at the base of the module, it can be popped into any odd space or corner and the onions will grow quite happily in a bunch until needed.

## Growing

Keep moist and well weeded. There is usually no need to thin spring onions.

## Harvesting and storage

Pull as needed and use immediately. Spring onions grown in a bunch as spot plantings can be cut at the base with a sharp knife, but if you need only the green leaves for salads, just snip them off the bunch with scissors (as you would with chives) and leave the plants to grow on.

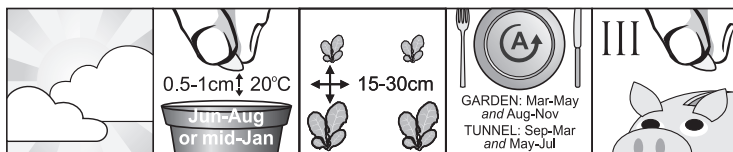
If you have to remove spring onions to make space but do not need them straight away, they can be stored upright in a glass of water in the fridge for a week or

more. Alternatively they can be trimmed and chopped for freezing or drying.

## Problems

As for bulbing onions (see page 117).

## Pak choi (and other Chinese cabbage varieties)



**Varieties:** ‘Tatsoi’ (very hardy), ‘Choi Sum’

While pak choi and other related ‘Oriental’ vegetables will grow outside, they do much better in the hot, humid environment of the polytunnel and are usually ready in five or six weeks. They are most useful as an overwintering plant, adding variety to menus from late autumn through to the following spring. While being somewhat hardy, most will still need the protection of a cloche to survive through the winter. All are prone to attack from slugs.

Pak choi varieties fall into two basic types: white- or green-stemmed. The green-stemmed varieties are said to have more flavour.

## Preparation

Pak choi needs a moist environment as the root system is quite shallow. Add lots of compost to the soil beforehand and dig it well in.

## Sowing

Pak choi produces typical ‘brassica’ seeds, quite small and round. This can make them difficult to handle as they roll very easily – it’s a bit like trying to handle a pile of very tiny marbles. Sow one or two seeds per 6cm pot, 0.5-1cm deep in a free-draining soil. Germination is best at around 20°C but results will be reasonable from as low as 10°C.

If you want to harvest pak choi through the winter, sow it in modules from late June at two-week intervals until late August. Later sowings are unlikely to establish well enough to be worthwhile before growth ceases in the colder weather. For an early summer harvest, sow in modules indoors in mid-January and plant out in early March.

## Growing

Once the first true leaves are well developed, plant out allowing 15-30cm between plants and rows, depending on how large you want them to get. While the shallow roots of pak choi make it prone to drying out, they make it an ideal container plant.

As the days lengthen and the weather begins to warm, overwintered plants will bolt, usually beginning in early to mid-February with ‘Tatsoi’ and smaller-leaved varieties, with the larger-leaved plants following in March.

## Harvesting and storage

Leaves can be harvested as soon as they are considered large enough, potentially making this a very fast crop indeed – as little as three weeks from sowing.

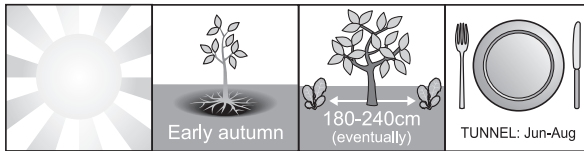
As with many plants, you can take a ‘cut and come again’ approach to harvesting pak choi. Rather than taking the entire plant, just pick an outer leaf or two from each one until you have enough for your meal. You can also cut the entire plant off about 2.5cm above the ground and leave it to sprout again.

Most hearting varieties of Chinese cabbage (such as Wong Bok) are suitable for freezing as wedges, slices or individual leaves, provided that they are blanched for about a minute and a half. In cooler months, cut heads will keep well for a week or two wrapped in newspaper on racks in an airy, frost-free shed or garage, but they tend to develop a strong smell so do not store them indoors.

## Problems

**Slugs, flea beetles, cabbage root fly and caterpillars.** Most pests will take up residence right in the centre of the plant where the leaves are the most tender and easy to damage. A small, long-handled spoon is a good tool for getting to the heart of the problem without wrecking the plant in the process.

## Peach



**Varieties:** ‘Avalon Pride’, ‘Hylands’

Peach trees originated in China and are now grown commercially in Mediterranean areas. Although there are a few varieties that are marketed as outdoor plants they are only marginally successful in most situations. Growing them in a polytunnel allows them to fruit heavily and reliably, although they do need quite a bit of space; to avoid competition for water and nutrients, you should not plant anything closer to the tree than its drip line (the imaginary circle where drops of rain striking the outer leaves would fall).

The biggest problem with growing peaches in the UK is the damage done by frost to their extremely early blossom, which can be all but eliminated by growing them under cover. Provided that you do not use overhead watering, peach leaf curl (a common and devastating fungal infection) is much less likely to occur in polytunnel plants, but choosing a variety with some resistance to this (such as ‘Avalon Pride’ on a dwarfing rootstock such as St Julien A) will help to reduce the likelihood of problems. Nectarines are a smooth-skinned variant of the peach and are grown in much the same way, but they are less hardy and more prone to pests and diseases.

**Note:** You should not consider growing peaches if there is an almond tree nearby, as cross-pollination can result in bitter fruit.

### Planting

As for apricots (see page 68), except that peaches prefer a pH between 6.5 and 7.5.

### Growing

Feeding and maintenance are as for apricots (see page 69).

Most peach varieties are self-fertile but yields will be better if you do some hand pollination with a soft brush. Ideally this should be done every afternoon for as long as the flowers last. For the largest and sweetest peaches, thin the fruitlets to 10cm apart when they reach the size of hazelnuts, beginning with any that are small or crowded, and again to 20cm when they reach the size of walnuts.



## Harvesting and storage

Developing peaches need to be exposed to the sun to ripen properly, so as the fruit develops lightly prune any growth that is severely shading it. As they ripen the fruits develop a red blush, and to develop their full flavour they should be left on the tree until the flesh feels soft when given a gentle squeeze at the stalk end. To pick, cup the whole fruit in one hand and lift it gently away from the tree; it should come away easily.

Ripe peaches do not keep at all well, and should be eaten immediately. Fruits taken just before ripening will last longer and can be left to ripen in a fruit bowl. Although they won't develop the same juiciness and depth of flavour, this may be the best way to pick them for visitors to take home.

In the unlikely event of a real glut, you can freeze peaches whole, which is uncomplicated but can be a bit messy when you thaw them (pour boiling water over the frozen fruit to crack the skins, then slip them off). Alternatively, prepare them before freezing by blanching briefly and removing the skins. Then halve them with a sharp knife and remove the stones before packing them in a light syrup (100g sugar to one litre of water, plus a dash of lemon juice – heat to dissolve the sugar and cool completely before use) for freezing, remembering to leave room in the container for the contents to expand as they freeze.

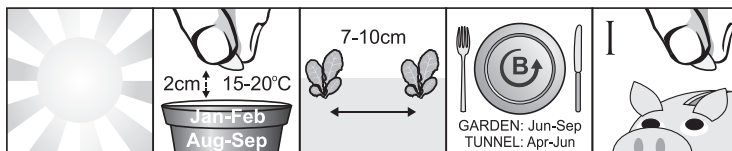
You can also dry peaches, which make a delicious snack with no additional preparation. For the best results, skin them as described above, then dip them in a mixture of one part honey to ten parts water (again, heated to dissolve the honey and then left to cool down) before drying.

## Problems

### **Aphids** and peach leaf curl.

Peach leaf curl is a fungal disease causing severe deformity of the developing leaves, and the loss of both fruit and flowers. A single attack is unlikely to be fatal to the tree, and even if it loses its leaves it can produce another set later in the year. However, the disease overwinters in cracks in the bark and can re-infect the tree. Thankfully, peach leaf curl is much less likely in plants grown under cover, and choosing a resistant variety means that you will probably never see it. If you are unlucky enough to get it in the tunnel, your only choice is to break its life cycle using a copper spray such as Bordeaux mixture. This should be done only as a single-year treatment for a confirmed infection because copper can accumulate in tunnel soil. You should also remove all fruit from the affected tree to allow it to concentrate its remaining energy on recovering from the infection, and remove all foliage for burning as it falls.

## Peas



**Varieties:** ‘Green Shaft’ (early podding pea), ‘Douce Provence’, ‘Bijou’ (giant snow pea)

As peas grow perfectly well outside it isn’t really worth growing them as a summer plant in the polytunnel, but they are easy to overwinter to produce a spring harvest that will be really welcome when there is not much else available outside. Alternatively, spring-planted snow and snap peas (collectively known as ‘mange tout’) are ideal and will still be ready a month before outdoor plantings. They are hard to beat when lightly steamed or as an addition to salads, and, because you don’t have to wait for the peas to ripen, they can be picked much earlier than podding varieties.

### Preparation

Peas like well-drained, rich soil and full sun. They can do well in poorer conditions, but if you want a really good harvest give them a sunny spot and dig in some organic matter beforehand. Although they are legumes and will eventually create their own supply of nitrogen, this won’t happen until the plants are well established.

Most peas are tall and will need plenty of room to climb, so careful siting is required.

### Sowing

Sow 2cm deep in root-trainer modules or biodegradable pots. It’s not usually worth the heartache of sowing direct into the earth, as mice often find them. Plant out at 5cm tall, about 7-10cm apart in a row.

#### *Overwintering peas*

Sow a ‘round’ seeded variety in modules from late August to early September, planting out in late September. A few peas may appear in December (see right), but the main picking season will be April.

#### *Spring-planted peas*

Sow in modules in late January to early February, planting out in March with protection from frost. Hardy ‘round’ seeded peas should be used for very early sowings, but as the weather warms up the more tender ‘wrinkled’ varieties can be used, giving sweeter peas. The first should be ready during early May.

## Growing

In the coldest months, frost will make peas (even round-seeded varieties, supposedly capable of overwintering) lose their rigidity. Unless supported by additional ties, peas may ‘unwind’ from their strings and fall over. If this happens, a kink in their main stems may not be something from which they can recover and they may either die or be substantially set back in their growth. However, if tied so that they cannot fall, when the cold weather passes they will simply re-inflate and continue growing.

Place them along the north side of the tunnel if possible so they don’t shade anything else as they get taller. Peas need support, so train them up strings or pea netting.

Overwintering peas will probably begin producing flowers and even an occasional pod during December, and these should be picked so the plant doesn’t get the message that the growing season is over.

## Harvesting and storage

Podding peas and snap peas are ready to pick as soon as the pods are well filled, whereas ‘snow’ peas are best picked before the peas inside have developed at all. Keeping all varieties well picked will ensure a longer harvest: the more you pick, the more you get.

Snap and snow peas can be frozen successfully. Wash, trim off the flower end and pull out the string (if present) before blanching in boiling water for two minutes then open freezing. Podding peas can be treated the same way, but there is no need to wash them first and they should be blanched for only a minute and a half. In all three cases, blanch and freeze the food as soon as possible after harvesting it, as the natural sugars in the peas are quickly converted to starch.

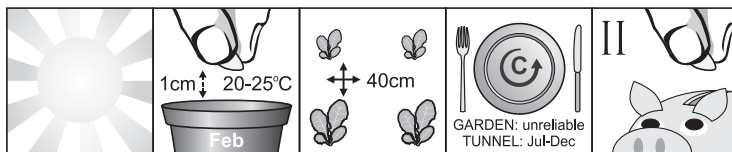
## Problems

**Mice** and **slugs**. Bottle cloches with copper tape rings (see Chapter 10, page 170) are ideal protection for both, and can be left in place for the entire growing season.

**Aphids** are sometimes a problem but less so on overwintering plants.

# Pepper

(sweet and chilli)



**Varieties:** (sweet peppers): ‘Sunnybrook’, ‘Sweet Nardello’; (chilli peppers): ‘Iranian Round’, ‘Early Jalapeño’

Peppers are a great tunnel plant because in the UK there’s really no alternative – they just don’t do very well outside. They like lots of pampering, shelter, warmth and light, and if you can provide these they will reward you with a harvest that can last from mid-July right through to the end of November. That’s nearly five months, making them a very valuable long-term addition to the vegetable garden.

## Preparation

Peppers are tolerant of a wide range of soils, from quite acidic to alkaline, but prefer something midway between the two rather than an extreme. They like a rich, well-drained soil that’s reasonably rich in organic matter to help retain moisture, and appreciate a top dressing of compost once or twice during the season.

## Sowing

Peppers need to be started early – so, for the earliest fruits, they should be sown in modules indoors in February, ideally at 20-25°C. If you can keep them somewhere warm with good light until you plant them out in May, your first peppers should be ready to pick in July, but if not it is better to delay sowing until the end of February at least.

Sow seeds thinly, 0.5-1cm deep, in 6cm modules, then put them in a propagator and/or cover them with a plastic bag. Germination usually takes about a week. Separate and pot on at around 2cm tall, when they are ready to be moved to 8cm pots. Bury almost all the stem in the new pot so that only the leaves are showing. This will encourage root growth along the buried stem, which results in a more vigorous plant.

Because of this, peppers do best if potted on several times rather than just going from a small pot to something quite big. Wait for small white roots to show at the bottom of each pot before transferring to the next size up, and bury as much of the stem as possible below the soil level each time.

## Growing

When the weather is warm in May, peppers can be planted in their final position, either in the tunnel – in which case allow 40cm between plants – or in five-litre pots. The latter is better if you are gardening on heavy or poorly drained soil as the plants do not like having wet feet, but as they are very thirsty they will require regular watering.

Once flowers appear, the plants will benefit from occasional feeding, either with a comfrey-based tea or a tomato (high potassium) fertiliser. If you choose the latter, reduce the suggested dosage or there's a risk of phosphate build-up over time – which in a tunnel will be difficult to reduce.

Peppers will also need support as they get bigger, as their stems are typically not as strong as they look. Some growers like to pinch out the growing tips at 25cm to encourage side-shoots, but we have never found it makes much difference.

## Harvesting and storage

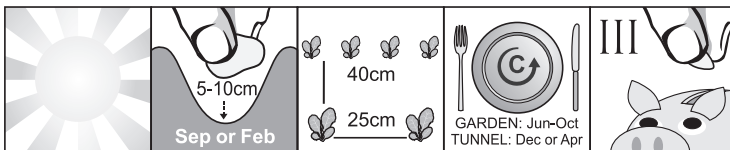
Peppers can be harvested when green or left to ripen, in which case they will turn red or orange, depending on the variety. Yields will be higher if the fruits are taken when green as the plants will continue to produce more. If you want to harvest red fruit, allow no more than eight peppers per plant to make sure they have enough time to ripen. Chilli peppers are grown in exactly the same way as sweet ones, the only difference being in the flavour.

Both sweet and chilli peppers can be cut up and open-frozen or dried without the need to blanch them first, although do wear rubber gloves when processing chilli peppers. Chilli peppers can also be dried whole by running a needle and thread through the thickest part of the stems to make a string of them. Hang them in a sunny place with good ventilation. As soon as they are fully dry, pack in airtight jars for the best flavour.

## Problems

**Aphids, whitefly and slugs.**

## Potato



**Varieties:** 'Orla', 'Colleen'



While potatoes are not generally thought of as tunnel plants, growing them under cover can give you the earliest harvest of new potatoes you've ever had. In warm years you can even plan them for your Christmas dinner – but beware, a sudden frost might change everything!

First early potatoes planted in mid-February should be ready towards the end of April, a full month before the outdoor plants. If you can save a few of this variety to act as seed potatoes, they can be planted in the tunnel from late August to give a harvest at the end of December.

## Preparation

Seed potatoes are usually available in gardening shops from late December onwards, and from your normal seed supplier shortly after that. Potatoes are described in terms of the time they take to mature, with the longest 'maincrop' varieties being the best for storage. For tunnel use, you want the fastest-maturing varieties, which are described as 'first earlies'. For the very earliest harvest the seed potatoes should be 'chitted' before planting (see Chapter 3, page 31).

## Sowing

Potatoes respond well to lots of food as well as the water-holding properties of a good soil, so dig the earth over well and incorporate plenty of manure or compost. Never plant potatoes in a spot where they have been grown in the three previous years. Create trenches about 15cm deep and 40cm apart, with mounds 15cm tall between them. Place the seed potatoes, chits up, at 25cm intervals along the foot of the trench, 5-10cm below the surface.

## Growing

Potatoes are not hardy and are very prone to frost damage, so they should be well protected in cold weather. Frost will kill the edges of affected leaves and can easily kill the entire plant, or at the least seriously set it back. Cover with fleece any time frost threatens, or you may lose the lot.

Once the plants reach 10-12cm tall, carefully pull the walls of the trenches in and cover them again. If you do this a couple of times, it results in longer root growth, which in turn means a bigger and better yield. Eventually, the trench will have become a ridge, from which the plants will continue to grow. At this stage, wait until things are starting to cool off at the end of a nice warm day, then put down a layer of straw on the earth around the potatoes. Every little bit of extra warmth you can give the plants will help in the cold weather.

## Harvesting and storage

When the plant flowers it is an indication that tubers (potatoes) are forming in the earth beneath, and they can be lifted at any time. Some varieties of potato don't show flowers, so if no flowers have shown by nine or ten weeks (or if you

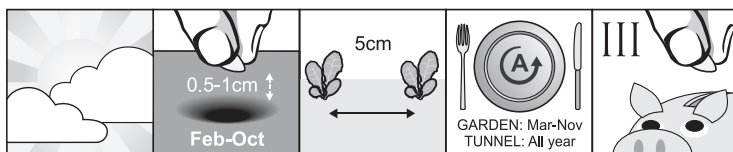
just don't want to wait) you can carefully feel in the earth at the edges of the area where you think the potatoes should be. If found, individual potatoes can be gently removed without damaging the remainder of the plant.

First early potatoes do not store well, and to reduce the chance of problems developing over time it is best to buy fresh, certified seed potatoes every winter. However, for plants sown in August to eat late in the year you will need to keep a few small, sound potatoes back from your early harvest.

## Problems

Frost, **slugs** and **blight**. Since blight does not become active until July, early potatoes planted in the spring should not be in danger, but plants grown in the autumn are very susceptible.

## Radish



**Varieties:** 'Pasque', 'Weiner Runder Kohlschwarzer'

Radish, especially salad radish, is probably the easiest and fastest tunnel crop you can grow. Anywhere there's a gap, there's room for a radish or two.

## Preparation

Radishes like light soils with lots of organic matter dug well in, but will tolerate a very wide range of conditions, so long as there is adequate water available. This makes them an ideal 'filler' plant whenever you have a bit of space going free.

## Sowing and growing

For a continuous harvest throughout the year, sow a few seeds at a time every couple of weeks from mid-February right up to October – although for winter use it may be better to plant a winter radish or 'daikon' (see page 96). Sow the seed 5mm to 1cm deep in light, stone-free earth and thin to 5cm apart, using the thinnings in salad. Don't sow too many at a time. Although radishes can be stored in the fridge for a few days, they are best eaten absolutely fresh; small, frequent sowings are the key.

## Harvesting and storage

Given reasonable conditions, radishes are ready to pick roughly a month after sowing, but can be ready in as little as three weeks. Because they are ready so

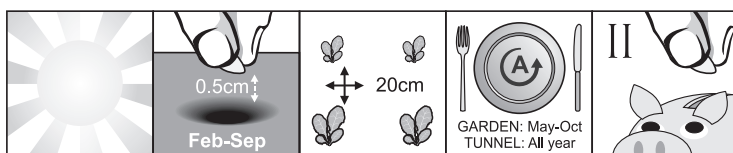
quickly, they can be used as a marker plant for slower-germinating seeds such as carrots; just sow a few seeds along the line of the drill, and the radishes will be ready to pick just as the carrots are getting their first true leaves. When the bulb has formed, pick and eat as soon as possible. Hot weather means hot radishes, so if you prefer cooler food make sure they get some shade!

Radishes have shallow root systems and need regular watering, or they will do one of three things: sit there looking sad, bolt, or get very, very peppery. None of these are desirable in most salads, so make sure they don't dry out. Radishes also tend to bolt in hot weather, so during the warmest summer months they will do better if planted in the shade of something taller.

## Problems

**Flea beetles** and **slugs**. Despite being a brassica, salad radishes grow too fast to be affected by club root.

## Rocket (arugula)



**Varieties:** 'Esmee', 'Mild Cultivated'

Rocket is quick and easy to grow, and hardy enough to stand through the winter in the tunnel with a little protection, giving a year-round harvest. It is available in different types, ranging in flavour from hot and peppery to mild and sweet.

## Preparation

Rocket is a very tolerant plant but prefers well-drained soil with enough organic matter to retain moisture.

## Sowing

Rocket seeds are tiny, and therefore difficult to sow evenly. If you mix the seed with a little sand it will be easier to see where you've sown them, and this will help achieve an even spread. This is a good tip for any small seeds.

To sow rocket, mark out a shallow (0.5cm) drill. Sow small sprinkles of seed thinly into this in clusters 5cm apart, then cover with fine seed compost and water in gently. The seedlings will not take long to appear, and as soon as they have their first true leaves thin them down to one per station. As they grow they will need to be thinned, first to 10cm and then to 20cm, to give them room to

develop without stress; you can pick leaves from them at any time, so long as you do not disturb the growing point.

Several sowings will be necessary to provide a year-round harvest, the last of which should be a larger sowing in August or September to provide a standing harvest for winter. Some varieties need protection in frosty weather, but this can be provided with a horticultural fleece cloche (see Chapter 7, page 59, for instructions).

## Growing

Rocket needs almost no attention beyond regular watering, and is usually ignored by slugs unless other food is in short supply. The only work you will need to do is to pick it regularly to stop plants building up too much leaf area and bolting; this may mean composting some of the pickings, but is better than losing the plant. Always keep the number and size of the plants under review.

## Harvesting and storage

Rocket leaves are quite delicious in salads but lose their flavour when cooked, so pick them young and use a ‘cut and come again’ approach (see page 110) to extend the harvest season. Single leaves can be stored as for lettuce, but again are best eaten fresh from the plant.

Many people make the mistake of thinking that when rocket becomes bitter and bolts, the harvest is over, so they pull the plants and start again somewhere else. However, you can also just leave them to it: let the plants flop over, then cut off about half the stem. New, less bitter leaves will grow out along the remaining stem, and give you a continuous harvest from just one patch for several more weeks and possibly months. Just avoid the hairy leaves forming on the upper part of the stems, as these are tough and make poor eating.

A rocket patch will eventually have too many coarse leaves, or have flopped on to adjacent plants, and will need to be removed. Anticipate this by sowing another patch elsewhere, so that harvesting can continue uninterrupted. However, if you don’t need the space, the old plants can be left to flower: both the flowers and seed pods, if they are allowed to develop, are a wonderful addition to salads.

## Problems

**Club root** and **flea beetles**.

## Salad leaves

Once you discover the ease and speed with which you can grow a really varied selection of salad leaves in your tunnel, it’s likely that salad vegetables will

become a more important part of your diet. Most of the work lies in the picking of them, and it's such a pleasure to gather your day's salad each morning that it doesn't seem like a chore at all. This section gives a sample of the many 'salad herbs' (plants for eating raw) that you might choose to add variety to your diet, alongside more staple salad ingredients such as lettuce, radish, cucumber and rocket.

Salad growing takes very little space, and there is no need to have a distinct area for leaves in your tunnel. In fact, except during the colder months when there is little pest activity, doing so is just asking for trouble. Don't make things easy on slugs and other leaf-munchers: rather than setting out a nice dense bed of greenery where they can live their whole lives undisturbed, put a few salad plants here and there with space around them, and deal promptly with any trouble.

Hardy wild rocket may be ideal for winter, but in summer it tends to bitterness. Basil is plump and aromatic in the summer, but even with pampering the flavour quickly deteriorates as autumn begins. The head gardeners of Victorian estates loved to show off by growing exotics preposterously out of season, but history is strangely silent about how their produce actually tasted. For the best flavour, growth and pest resistance, work with the polytunnel seasons rather than struggling against them.

All salad leaves can be sown direct or into sheets of modules. The latter require more work but can be brought indoors or given gentle heat with a pad or propagator to allow an earlier start. Kept on staging or on a suspended shelf, they can also be kept safe from slugs and other predators until the young plants are ready to grow strongly, which makes it easier to end up with just the right number of plants, at just the right spacing.

Watering tiny seedlings from above increases the risk of a sudden fungal attack known as 'damping off', and using a capillary bed for trays of modules is unreliable as there are always a few that are not in good contact with the matting. For best results, check modules each morning and evening, and as soon as the surface of the compost is just dry, stand the whole sheet in a large tray holding 2-3cm of water. Once the surface of the compost is moist, lift the sheet out again to avoid drowning the roots.

Most of the small selection of plants below work best with an eventual spacing of 20-25cm, and the best quality and highest yields are obtained by successive picking, as described for lettuce (see page 110). For more options for growing salad, see *Salad Leaves for All Seasons* in the Resources section.



## Basil

Sow two or three seeds per module, 1-1.5cm deep, in late April to early June, with gentle heat. When the seedlings have four true leaves, transplant them singly into 10cm pots, and again into a 20cm pot when they are large enough. Basil dislikes the cold, so bring the pots indoors if chilly weather threatens. Be careful to provide good warmth and light throughout its life, but not too much water. By mid-June you should be able to pick a few leaves, and this quickly increases to a reasonable harvest that will continue until September. When picking always nip out the growing point, and also pick and eat the tiny flowering stems. Grown like this, basil does very well, and unless you eat lots of it you should need no more than two pots.

## Chervil

Chervil has fine, feathery leaves, used in small amounts for their unique, slightly anise flavour. Sow 1cm deep from February to September for baby leaves. August and September plantings will stand over winter, and will bolt in March. It likes moist conditions and partial shade.

## Chicory

Strong-flavoured, chicory provides slightly bitter leaves for regular picking or large, sweeter hearts, which form on unpicked plants. Sow 1cm deep from April to September at 15cm each way for leaves. Sowings from late July are able to stand over winter if protected with fleece. For hearts, choose a hearting variety such as 'Sugar Loaf' and sow from early July to early August at 25cm each way. Cut as soon as the heart is mature (check the seed merchant's information as varieties vary).

## Chicons

These small, pale yellow heads of chicory are crisp and sweet, and are produced by forcing the roots of 'Whitloof'-type chicory plants (for example, 'Whitloof Alba') that were sown before mid-June and picked only lightly. Carefully dig the roots out in November (any branch roots left behind may sprout again like weeds) and trim off the tops, before planting them three or four to a 30cm pot. Leave the top 3cm of root exposed, as this is where the chicons will grow. Place the pots in complete darkness – for example, under an upturned bin – as any light will turn them green and bitter. They will hardly grow at all in the cool of the tunnel, but can be kept until needed and put into a warm cupboard for a harvest two to four weeks later. Cut them as soon as they begin to elongate prior to flowering, and leave to grow again, although later cuttings will be smaller. Chop up and compost the roots when they become exhausted.

## Dill

Dill has fine, feathery leaves, used in small amounts for their strong aniseed-like flavour. Sow 1cm deep from February to August for baby leaves. If growing to

maturity for seed, be aware that the adult plants grow to at least 80cm and sometimes much taller, and will shade out other plants. Dill likes full sun and well-drained soil.

### **Lamb's lettuce (corn salad)**

The waxy leaves of lamb's lettuce have a buttery sweetness. Sow direct from mid-August to September at 2.5cm intervals in 1-1.5cm-deep drills, 20cm apart, for an overwintering crop that needs no protection. Nip off the small rosettes of leaves without disturbing the growing point, and watch out for mildew. When growth accelerates in the spring cut the tops off the row of plants with scissors, and when it flowers make one last cutting and remove the plants.

### **Mibuna**

This is similar to mizuna (see below) but with a stronger flavour. It is best eaten small for milder leaves, so sow at 10cm spacings. Sow 1cm deep July to early October for standing over winter. It tolerates most soils.

### **Mizuna**

Mizuna has fast-growing and juicy winter salad leaves with a mild, slightly peppery flavour and tasty flowering stems. Sow 1cm deep from July to early November. September sowings will be ready in November and December, and early November sowings will overwinter under fleece.

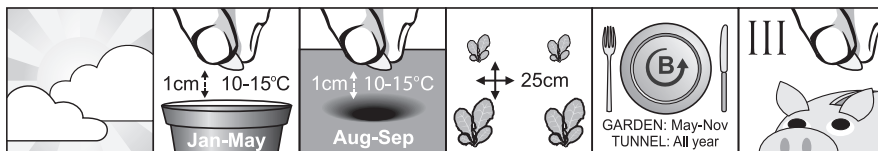
### **Mustard**

Mustard is an excellent hardy plant with a wide range of striking varieties, and a pungent peppery flavour that is made much milder by brief cooking. Sow 1cm deep from February to April for baby leaves, and from July to October for standing over winter. Winter plants may be picked or left to form large heads. Choose a bolt-resistant variety such as 'Green Wave'.

### **Pea shoots**

Pea shoots are tender and delicious as a salad vegetable, with the sweet taste of fresh peas. Sow three or four seeds of a wrinkled variety per module in March at a depth of 2cm, planting them out to 20cm spacings when they are 5cm high. Alternatively, sow one seed every 2-3cm in a section of plastic guttering filled with compost, and when big enough to plant, slide the whole thing into a shallow trench in the soil. When the seedlings reach 20cm high, trim off the top 5cm of the plants with scissors and leave to re-grow. Repeat until they become tough – the harvest is usually from late April to early June.

## Spinach



**Varieties:** ‘Winter Giant’, ‘Matador’

Spinach is quick and easy to grow and is great either added raw to a salad or as a hot steamed vegetable. Because spinach is high in oxalic acid, anyone with gout, kidney disease or rheumatoid arthritis should avoid eating large amounts of it.

There are many varieties available, some of which will do better than others in dry, warm conditions. Some will grow well only in the spring and others only in the summer, while a few varieties are suitable for the whole season. Whichever one you choose, spinach always seems to bolt too soon, so keep sowing for a continuous harvest. Pick a few leaves from each plant rather than cutting the whole thing.

### Preparation

Spinach will do best in well-dug earth that includes plenty of compost or other organic matter, is free from stones or clumps of compacted earth, and is rich in nutrients.

### Sowing

‘Sow spinach’, to quote an old saying, ‘when crocus and snowdrops begin to bloom.’ Spinach germinates best between 10°C and 15°C, and above 20°C germination is poor. Soak the seeds for 24 hours beforehand as this will help them germinate. For the earliest start, spinach can be sown about 1cm deep in modules in January and February indoors or with gentle heat, but since it doesn’t like being transplanted later, sowings are best made directly into the soil bed, and these can be started as early as February in a mild spring. A covering of fleece with the edges held down may be necessary to protect the seeds from mice and the seedlings from slugs. Place seeds 1cm deep and 3cm apart. Make successive sowings every few weeks until late May, either in the tunnel or an outside bed. Later sowings are likely to bolt almost immediately because of the heat, but for a harvest over winter a further sowing can be made in the tunnel in late August to mid-September.

### Growing

Spinach does best in cool, slightly shaded areas, such as between rows of sweet-corn or beans, and will quickly bolt in full sun. It also bolts in response to other stresses, so mulch round the plants with compost in warm weather and don’t let

other plants crowd them. As spinach is a leaf crop it will appreciate a feed with comfrey tea (see Chapter 11, page 178) from time to time.

## Harvesting and storage

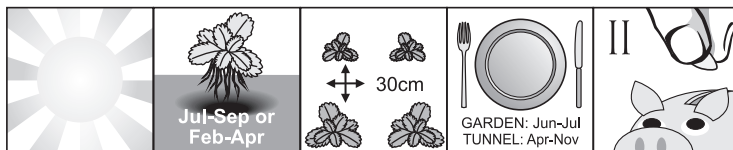
As the plants grow, gradually thin them to 25cm each way. Thinnings of any size are great in salads, but nip them off at ground level so you don't disturb the root systems of the remaining plants. Once the final plants are big enough, harvest them by cutting individual leaves. These will wilt quickly, so have a damp plastic bag ready to put them into. In warmer weather, harvest only in the cool of the morning.

Freshly cut leaves will keep in the fridge for a few days, so long as they don't dry out. For longer-term storage, the young leaves can be cut into strips and steamed for one-and-a-half minutes before drying (a handy soup ingredient) or freezing in meal-sized portions.

## Problems

**Slugs.** If you're collecting seeds, beware of **mice** – they will strip the plant of all seeds before they're ripe enough for collection (see Chapter 9, page 166).

## Strawberries



**Varieties:** 'Honeoye', 'Aromel'

Strawberries are many people's favourite fruit, and are easy to grow and maintain outside. Available as early, mid-season and late varieties, strawberry plants are hardy and will grow without protection, and in that respect there is no need to plant them in a tunnel. However, if you can't wait for the outside harvest to begin, you can use early varieties in your tunnel to produce fruit three weeks ahead of plants outside. You can also use a fourth type of strawberry, the 'day-neutral' (or 'ever-bearer') to provide a slow but steady supply of fruit until November, even if the flavour isn't in the same league as some June-bearers.

## Preparation

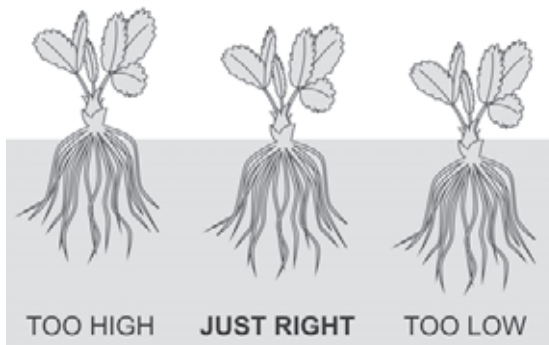
Strawberries prefer slightly acidic conditions, which are difficult to achieve on neutral or alkaline soils, but fortunately for us they will tolerate a much wider range. They appreciate well-rotted compost, especially if it has been dug into the earth during the previous season, and will then produce more fruit and fewer leaves.

Make sure the bed is weed-free before planting, as once the plants are established some weeds (couch grass, for example) are difficult to eradicate without causing more widespread damage.

## Sowing

In order to develop a good root system it's best to plant in the previous autumn rather than in the spring. Strawberries can be set out any time from July to September, but if you don't get around to it then they can also be planted in February, March or even April. Remember, the later they go into the ground, the smaller the harvest you can expect.

Shape a small, shallow trench about 20cm wide and 6-8cm deep, and place a handful of earth every 30cm along it. This should be shaped into a cone, the peak of which should be level with the surface of the surrounding earth. The plants should be set neither too deep nor too shallow, but so the crown just sits on the surface (see diagram). Too deep and they'll rot; too shallow and they will remain stunted and poor, and will be far less likely to bear fruit. Position the crown on the peak of the cone and spread the roots around it, then pull in the earth to fill the trench. Make it firm enough around each plant so that if you pull sharply on a single leaf, the leaf will break off rather than the plant being pulled from the ground.



The correct depth for planting strawberries

## Growing

As soon as the fruit starts to form, put straw beneath the plants. This will prevent weed growth and also stops the ripening berries from coming into direct contact with the earth. If they do, they'll rot. Barley straw is the most pliable and also has some anti-fungal properties, but so long as you intend to pick on a regular basis any kind of straw will do.

Runners (self-rooting stems) will probably develop from the plants even before the first fruit has set, and will continue to be produced through the season. These



are both a blessing and a curse, because although they allow you to produce new young plants, they take a lot of energy from the parent. The strongest runners can be rooted into pots and used to establish next year's new bed, or to replace unproductive plants in the current bed, but all the others should be removed before they root. This is a lot of work, but if you don't do it the strawberry bed will be a disaster the following year. Crowding will reduce air flow, and in the tunnel's humid atmosphere lots of fruit will go mouldy.

To root runners, peg the plantlet into place on the soil surface in an 8-10cm pot, and it will root itself. Once rooted, it can be separated from the parent and should ideally be planted into its new bed immediately. Don't root too many runners from a single plant – one or two at the most.

Check regularly beneath the straw to see if the bed needs watering. Strawberries should not be allowed to dry out, but when watering take care not to splash water around – you are much more likely to spread mould if you do. If you see plants producing pale leaves or failing to flower, this may be a sign that they are running out of nutrients. Give them a couple of feeds with a balanced organic liquid fertiliser. Nutrient-starved plants may also fail to set fruit, but insects (and particularly bees) are also important, so make sure they have access to the flowers.

If you're trying to keep bees and other flying insects out of the tunnel (to prevent unnecessary casualties), dusting the flowers with a soft paintbrush or cotton bud is your only alternative, as strawberries will generally not pollinate themselves despite the hermaphroditic flowers produced by many commercial cultivars. Hand-pollination works, but is a somewhat laborious way to get a harvest, as you need to pollinate each flower several times to ensure even fruit development.

Early strawberries take some time to establish well enough to produce a big harvest, so what you see in the first year will probably be only a fraction of what you'll get in years two and three. Beyond that, pests, disease, overcrowding and perennial weeds will all take their toll. Because of this, early strawberry beds should be removed every three years and a new bed started in a different spot.

By contrast, day-neutral plants in a polytunnel will fruit to exhaustion and are therefore best treated as an annual harvest. Pot up enough runners to replace the existing plants and use them to start a new bed in early autumn. When the existing bed finishes fruiting, remove it completely.

## Harvesting and storage

Generally the advice is to remove all flowers during the first year in order to divert energy into the rest of the plant. However, plants that were set out by early autumn should already have a reasonably well-developed root system and will fruit quite happily. Growing day-neutrals for autumn strawberries is a little

different. To make sure that they have really well-established roots and crowns, nip out the first flush of flowers when it appears. Some gardeners like to remove all flowers until the last of the outdoor berries are ripening so that the plants don't become exhausted too soon.

Try to harvest the berries only when the plants are dry, or you risk spreading diseases and moulds throughout the bed. Check the plants every day, or at least every other day, during the fruiting season and pick everything that's ripe, or they will quickly go mouldy. Pick them with a little of their green stem, or part of the fruit may be left behind to rot.

Cut the old leaves down to a height of about 5cm once the harvest is complete. If you do this carefully you won't remove any of the smaller new leaves, which can then grow on. Remove the old straw and any dead foliage and compost them, then add a top dressing of compost with a little balanced organic fertiliser (taking care not to bury the crowns) to help feed the plants for the following year.

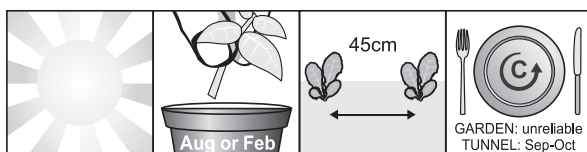
Strawberries may be frozen whole and fully ripe (after removing the green calyx) for later processing, and although the texture deteriorates markedly they can be used, still frozen, to top dessert dishes. Alternatively, halve the berries and pack them in containers of light syrup (100g sugar in one litre of water, heated to dissolve the sugar and cooled before use) for freezing, remembering to leave space for the liquid to expand as it freezes. They can also be dried if cut into slices no more than 5mm thick, and are surprisingly tasty.

## Problems

**Rabbits, birds, squirrels** (net against all of these), **slugs** and **moulds**.

**Mould** is a constant companion of the strawberry bed, especially in damp, cloudy conditions. Once present in a bed, the spores quickly spread, so you need to check the berries carefully on a daily basis and remove any affected fruit.

## Sweet potato



**Varieties:** 'O'Henry'

Not a true potato but a member of the bindweed family, this space-hungry plant is rarely grown in the UK, as outdoors it needs a long, warm summer to provide

a worthwhile harvest. But it is reasonably reliable when grown in a polytunnel – provided that you have room. Sweet and spicy with a creamy texture, this versatile root is traditionally baked, roasted or mashed but can be substituted for ordinary potato in pretty much any recipe to give an interesting twist to many winter dishes.

Sweet potatoes are not grown from seed, but are commercially available as ‘slips’ (cloned cuttings) or young plants. Both options are relatively expensive, but resist the urge to grow from tubers bought with your groceries as the varieties used are unlikely to do well in the British climate, even under cover. Besides, once you have some plants on the go it is easy to root some stem cuttings every August, giving them just enough time to establish themselves in pots for the winter. This gives a strong plant that will need potting up before planting in May, and if the plants don’t survive the winter you can still use one of your stored tubers to provide a supply of root cuttings in February.

## Preparation

Add a top dressing of 5-7.5cm of compost and fork it into the top layer. If your soil is not naturally free-draining, create a 15cm-high ridge for the plants, or a row of mounds 45cm apart.

### *Stem cuttings*

In early August, use a sharp, sterile knife (a Stanley or craft knife is ideal) to cut the tips off strong stems from a part of the plant that receives good light, making sure that they have at least three leaf nodes. Remove the lower leaf and any flowers and place the cuttings in a jar of water, then put the jar in a shady place. Within a few days roots will be developing and the cuttings can be planted into large pots of a 3:1 mix of seed compost and sharp sand or horticultural grit, leaving only the top set of leaves exposed. If conditions are very hot, supply some shade and water regularly until the plants are established.

### *Root cuttings (slips)*

In February, place a sound tuber in a large clear glass-lidded jar (or a large glass bowl covered with cling film), add water to a depth of 1cm, and close the lid before placing it in a warm, dark place. After between a fortnight and a couple of months the tuber will first begin to root and then to send out lots of strong shoots. As soon as the first of these appears, move the jar to a sunny spot indoors or a warm windowsill. Once each shoot reaches 10-15cm long, gently rub it off the tuber and pot up as described for stem cuttings, above. Put the tuber back in the jar, where it will continue to produce shoots for several months.

## Growing

Pot up as necessary, and plant into the soil beds or 50-litre containers once the soil has warmed up. In the case of stem cuttings, be careful not to let them

flower until the spring. If they begin to look leggy early in the year, move them to a sunny windowsill or provide extra light until the weather picks up.

Once established, sweet potatoes need little feeding and have only moderate demands for water. They do not tolerate being waterlogged for long, which is why we recommend planting them in mounds or ridges. If you decide to feed them, use a balanced organic fertiliser or one marketed for tomatoes, as nitrogenous fertilisers cause them to produce lots of luxuriant leafy growth rather than substantial tubers.

Being a member of the bindweed family, sweet potato sends out sprawling vines which, if left unchecked, may limit the light available to nearby plants. They also have an irritating habit of rooting from each leaf node, and this should be discouraged by lifting the vines periodically – otherwise you get lots of tiny tubers and fewer big ones. The vines can safely be pruned, but heavy pruning will reduce the yield of tubers; the variety ‘O’Henry’ tends to be easier to control as it has a bushier habit, but, as an alternative, consider providing a growing string as described in Chapter 6 (page 51). Periodically scoop the vines up into a bunch and run a loop of twine around them, then secure to one of the fastening loops on the growing string. Unless you can give the plants all the room they want at one end of your tunnel, this will need to be done several times.

Sweet potato shoots, young leaves and vine tips are also edible and can be served raw in salads, stir-fried, or sautéed Taiwanese-style with fried garlic and a little soy sauce. Be careful not to take too many shoots, as overenthusiastic harvesting of greens can reduce the tuber harvest.

## Harvesting and storage

Once the leaves have begun to yellow, but before the first frosts, carefully lift the plants with a fork and shake them as you would with potatoes. There will be a few sweet potatoes at the base, and although these will be smaller than the imported ones sold at market, once cured they will be seriously tasty.

Sweet potatoes have a starchy flavour when freshly dug and should be cured for a couple of weeks in a warm, dark, humid place before using. This curing process also allows the skins to set and any wounds to seal, making them store better. Once cured, move the roots to a cool (but not cold, 10-16°C) place with good air circulation and preferably high humidity, where they will store well for several months, provided that they do not get cold. Never store sweet potatoes in the fridge, and resist the urge to wash them until you are ready to eat them.

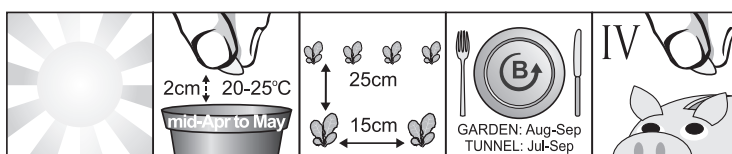
Sweet potatoes can be also dried after blanching in boiling water for three minutes, or can be cooked and frozen whole, sliced or mashed. To stop the lovely orange colour from deteriorating, dip the cooked pieces in a weak solution (one

tablespoon per 500ml) of lemon juice, or add two teaspoons of lemon juice to each cup of mashed vegetable.

## Problems

Occasional **botrytis**, but only if growth is crowded or conditions are very damp: remove affected leaves and spray the remainder of the plant with bicarbonate of soda solution at the first sign of problems (10g/litre plus a drop or two of phosphate-free washing-up liquid or an organic fungicide such as Citrox).

## Sweetcorn



**Varieties:** ‘Early Xtra Sweet’ (F1), ‘Double Standard’ (open-pollinated)

The ancestor of modern sweetcorn is a native grass known as Teosinte, first domesticated in the central and southern regions of Mexico more than 6,000 years ago. The plant we grow today is a very selected and refined version of the original; unable to self-seed, modern sweetcorn would die out without human intervention. All sweetcorn, whether open-pollinated or F1, prefers to be pampered in a warm, sheltered spot with well-manured or composted ground and plenty of water.

Sweetcorn is a great tunnel plant, and making room for just a few plants will give you an early harvest while you wait for the outdoor plants to ripen. However, it’s tall – so be careful to site it where it isn’t going to cast shade on other plants.

Seeds are generally sold as being early-, middle- or late-maturing. Open-pollinated varieties need a longer season, so only F1s are marketed as early. If you haven’t grown sweetcorn before, or have had limited success, we would advise growing an early F1 variety of supersweet corn such as ‘Early Xtra Sweet’, which keeps its sweetness far longer than older varieties. In the UK it’s rarely worth growing open-pollinated varieties outside as the season often isn’t long enough, or warm enough, to get a decent harvest. Aside from that, you need at least 200 plants in a block to save seed, and even then the advice is to only save from the plants in the centre; small wonder so few people attempt it.

Whatever you decide, sweetcorn is a delicious tunnel ‘luxury’ food, and all varieties of sweetcorn will be out of the ground in plenty of time for an autumn/winter planting of something else.



## Preparation

Prepare the ground at least two weeks beforehand by adding plenty of compost and a handful or two of bonemeal, as sweetcorn will do better on phosphorus- and potassium-rich soil.

## Sowing

To avoid damage to the brittle roots, sow corn singly in deep biodegradable pots at a depth of 2cm, on a sunny windowsill indoors. Seeds can be sown as early as mid-March if the weather is warm enough, but if a late cold snap checks their growth they will never become strong plants; unless your tunnel is likely to be consistently warm by the end of April, it is better to wait until mid-April to sow.

Sweetcorn germinates best between 20°C and 25°C and can rot rather than germinate if the earth is too cold. Once up, it needs plenty of light. Try to keep some seeds back to fill gaps in case the germination rate is lower than you hoped. For the same reason, plant more than you intend to grow – if you can spare the seeds, which are often sold in maddeningly small packets.

**Note:** Dwarf French beans and sweetcorn grow very well together and don't compete for nutrients; plant a few bean seeds along every two or three rows just after planting out the corn seedlings.

## Growing

Sweetcorn likes to be pampered. The protected environment of a polytunnel will be far more sheltered than anything outside, and also gives you total control over watering and drainage.

Plant the seedlings in a block rather than in a long row, at spacings of 15cm by 25cm. This is somewhat closer than is usually suggested for outside growing, but with a good supply of nutrients in the earth and a warmer, longer season than they would get outside the tunnel, you can aim for a bigger harvest from a smaller space.

Sweetcorn is pollinated by the wind rather than bees or insects, and of course there won't be very much air movement in a tunnel compared with outside. Once you see pollen on the flowers at the top, give each plant a gentle tap and clouds of it will descend on to the tassels of 'corn silk' (masses of long, fine, light green hairs that grow from the top of the developing cobs) below. Each hair leads down to one of the potential seeds on the cob, so each one needs pollination.

As the plants grow, new roots may emerge from the stem near to the ground. Earth them up with compost or a mulch of comfrey leaves to give your plants an additional supply of nutrients. Keep the area free of weeds, but be very careful if you're using a hoe as the roots are shallow and easily damaged.

A liquid feed designed for tomatoes will help the development of the cobs when they begin to appear. Corn is a heavy feeder, and the soil will benefit from an application of compost as soon as the corn plants are removed.

### Harvesting and storage

After pollination the corn silks dry out slightly and gradually turn brown, which is a sign that ripening has started. It's very easy to miss the right time to pick, after which the cobs become tougher and less sweet. To see if they're ripe, slightly open a cob and slice one of the seeds with your fingernail. If the juice is slightly milky and tastes sweet, it's time to pick. Gently twist the cob and it will break off without damaging the plant (this is important, as a well-fed plant sometimes bears more than one full-sized cob). The cobs begin to lose their sweetness as soon as they are off the plant, so get them up to the kitchen as quickly as you can. Once the ears have had the husks and silk removed, they should be trimmed and rinsed briefly before cooking.

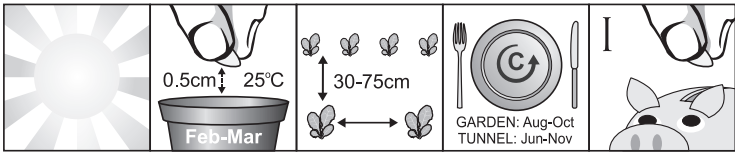
Corn is a good crop for freezing and keeps for many months, although super-sweet varieties keep best. Blanch whole cobs in boiling water for four minutes (or steam for six minutes) and then plunge them into cold water, and when cool pack a meal's worth at a time into plastic bags for freezing, or alternatively strip the kernels off the blanched corn with a sharp knife for open freezing and bagging.

Because of its dense core, corn on the cob is the only vegetable that should be defrosted thoroughly before boiling, roasting or steaming.

### Problems

**Slugs and mice.** Mice will dig up the remains of the seeds even when the plants are 10cm tall or more. Bottle cloches (see Chapter 10, page 170) can be used to stop them, and the bright copper tape rings around them will prevent slugs as well. The cloches can be removed later when the plants are well established.

## Tomato



**Varieties:** 'Latah', 'Red Cluster Pear', 'Harbinger'

Along with runner beans, tomatoes are one of the most commonly grown foods for British gardeners, and their popularity has made them a doorway into vegetable gardening for thousands of people.

The range of tomato varieties available is staggering, and runs from huge ‘beef-steak’ tomatoes, where a single slice will be enough for an entire sandwich; to tiny ‘cherry’ types – potent little balls of flavour that can be grown in hanging baskets tucked away in a tunnel corner. As well as in hanging baskets you can grow tomatoes in containers, grow bags or soil beds. Plant types range from bushy and compact to huge, triffid-like monsters that can be 2 or even 3 metres tall. Fruit can be red, yellow, striped, orange, purple and early or late – it’s just endless, and great fun too.

Growing tomatoes in a polytunnel can be difficult, as humid environments encourage the formation of blight. Tomato plants are a bit picky. They are hungry feeders, prefer rich soil, and like calm spots with good drainage and plenty of sun. Despite all this, they are tremendously rewarding and part of the repertoire of any gardener. There are outdoor varieties of tomato that will produce a satisfactory harvest in a warm, sheltered spot, but they really don’t compare to indoor varieties and fruit several weeks later – and, in poor summers, not at all.

When choosing a tomato variety for the polytunnel, go for an ‘indeterminate’ variety rather than a ‘determinate’ one. Indeterminate tomatoes grow as a vine, which can be trained up a cane or growing string (see Chapter 6, page 51) and keep growing and fruiting until killed by frost, giving a long cropping season. Determinate varieties get to a certain size (which depends on the variety) and then produce a single flush of fruits that all ripen more or less at once. This makes them very popular with commercial growers, but they are less suitable for tunnel use because they produce a riot of low-level growth that is difficult to maintain, and tend to invade the space around them.

Also remember that F1 varieties are not suitable for seed saving, and they are often dull creatures selected for looks rather than taste. This is a pity, given the fantastic diversity of this species. Joining the Heritage Seed Library, part of Garden Organic (see Resources section), will give you access to a bewildering range of truly unique tomato varieties, and we heartily recommend it.

## Preparation

Tomatoes are heavy feeders and need lots of organic matter dug well into the earth, whether in a bed or a container. This helps to prevent uneven watering and, together with the nutrient value of a good compost, will give you healthy, vigorous plants. A handful of comfrey pellets is a welcome addition.

## Sowing

Sow seeds into 9cm pots, 0.5cm deep. Germination is usually good, so don’t sow more than two or three to a pot, and thin to the best plant when they’re 2-3cm tall. Don’t pull the seedlings out as this will disturb the roots of the plant left behind – nip them off at ground level instead.

For strong plants without the risk of stunting, tomato seeds should be sown in modules around the middle of March and given a warm and well-lit spot, such as an indoor windowsill, until they can be brought out to the tunnel some time in April. For the earliest tomatoes and best yields, however, they need to be started in late February. This can be managed by putting the modules in a watering tray on top of a heating mat when they come out to the tunnel in March, provided that you take care never to let them dry out. However, unless the spring is a bright one, the plants tend to become leggy and you will lose the advantage of planting early. To be sure of success with early plantings you need to use grow lights too, and although this carries an energy cost it is much lower than shipping an equivalent amount of food from a warmer climate.

### **Andy says:**

“Having had variable success with early sowings in the past, I usually sow at the very start of March. If the spring turns out to be dull and my plants go leggy, I can always buy some replacements from a nearby nursery, where the owner uses heat and light to bring on large numbers of plants very efficiently. Always remember to inspect plants carefully to make sure they’re free of pests and diseases, and quarantine them on a warm windowsill for a week or so if you can.”

### **Mark says:**

“I still strive for an early harvest, especially as a cool, damp summer will invariably result in widespread blight later in the season. So, I hedge my bets. I start a couple of plants indoors under a single fluorescent light in mid-February, along with some peppers, aubergines and a few lettuce. Then I plant more in the propagator in March.”

## **Growing**

Potting on tomatoes is a little different from potting most other plants, in that you do not aim to match the previous soil level. Instead, place them deep into the compost so that the stems are covered to just below the topmost clump of leaves. This may sound strange, but tomatoes are one of the very few plants that can tolerate really deep planting and will develop roots all along the length of the buried stem, giving a much stronger plant. You don’t have to go quite this deep, but the plants will tolerate it; nip off any leaves that would be buried by the compost. To avoid compacting the compost and exposing some of the roots, water the pots from the top once to settle the compost, but after that water them from below by standing them in a saucer or shallow dish for a while, or place them on a capillary mat.

Flowers will generally form six to eight weeks after potting on, and fruit a further six to eight weeks after that; so a February sowing can give you ripe fruit as early as June. Wait until the first flowers have formed before you set tomato plants out

into their final growing positions, or you will get a lot more leafy growth before any flowers appear, delaying fruiting.

Spacing can be anything between 30cm and 75cm apart depending on the variety, but allow *at least* as much space as the seed merchant recommends. Cramming tomatoes into a polytunnel is a common beginner's mistake, and makes it difficult to see round the plants properly – an invitation to disease and unwanted growth, leading to poor yields or worse. Provide a cane or growing string (see Chapter 6, page 51) to support each plant.

If your plants are destined for grow bags, give each bag a good shake beforehand to break up any dense clumps of compost, and poke some drainage holes in the underside and also around the edges. This is very important, as tomatoes won't do well if their roots are left sitting in water. Plant them two to a bag rather than three, for larger plants and bigger fruit. Watering tomatoes in grow bags or pots successfully is tricky; ideally the compost should be just moist, and in warm weather that's difficult to achieve. It's best to give them a thorough soaking and then let them gradually dry out rather than trying to keep them continually damp, but don't let them dry out too much; as soon as the surface is just about dry to the touch, soak them again. For extra water security, use a second grow bag below the first and use a trowel to puncture the plastic between them, giving twice as much compost and twice as much water-holding capacity; the plants' roots will soon find the holes.

Taller plants should be tied to stakes or growing strings at 25cm intervals. As the plants grow, nip off any side-shoots as soon as you notice them. These begin at the leaf joints on the main stem and, while they can eventually produce both flowers and fruit, they steal energy from the main stem and delay the harvest. Side-shoots also create dense growth, which reduces air circulation and increases the risk of blight.

Flower trusses grow straight from the main stem rather than from the leaf joints, and you need to be careful not to nip these out. The fruit on a flower truss can sometimes become heavy enough to need its own bamboo support.

If you have grown and potted your plants on in good compost, there should be no need to feed them until they begin to fruit. Tomatoes are thirsty plants, however, and once they begin to flower, providing an even level of moisture is critical to the development of fruit: uneven watering can split them or even cause blossom end rot, which renders them inedible immediately. A moisture meter, available from good garden centres, can be a great help in avoiding this. Once flowering starts, give them a low-level dose of tomato feed once or twice a week.



## Harvesting and storage

Everyone knows what a ripe tomato looks like but as they are usually sold slightly under-ripe, shop-bought fruits are usually quite firm; when properly ripe, tomatoes should give a little when squeezed and this is when the flavour is best. Harvest each fruit as it becomes ripe, levering it up so that the calyx (the little tuft of green leaves at the top of the fruit) comes with it, and use within a few days; fruit kept in the fridge will keep for a couple of weeks but the flavour weakens with storage.

If frosts threaten but there are still fruits that are not quite ready, they can be ripened indoors in a dark, semi-humid place such as a drawer or cupboard, but never near a radiator. Depending on how many there are, they can be wrapped in paper and put in a large paper bag or cardboard box, layered no more than two fruits deep to avoid bruising. A few ripe tomatoes or a banana will help to speed things up. If there is a lot of unripe fruit left on a plant, lift the whole thing along with some roots and hang it in a dry, sheltered place such as a garage or shed. Ripening will continue for several weeks, but check them every few days for signs of mould, removing any affected fruit immediately.

Ripe tomatoes can be frozen whole on trays (after removal of the calyx), and later transferred to plastic bags; when thawed they will be soft, making removing the skins very easy. They can also be halved or sliced thinly for drying, giving them a concentrated flavour that is used, like a herb, for crumbling into sauces or dressings, or over pasta. They can also be canned (bottled) if harvested under-ripe. See *How to Store Your Garden Produce*, in the Resources section, for how to do this safely.

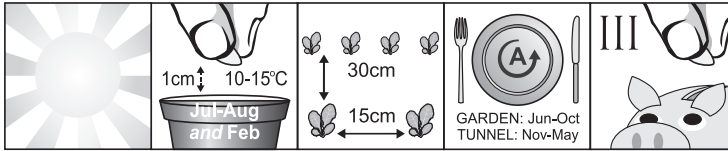
## Problems

**Whitefly, red spider mite, aphids, blight** and diseases including mosaic viruses of many types. These turn the leaves yellow and curly and can be easily transmitted from plant to plant by handling, so never handle tomato plants when their leaves are damp.

### How to grow a HUGE tomato

Plant a seedling of a large 'beefsteak' variety at one end of a shallow trench. As it grows, gently lay it down into the trench and cover the whole plant (except the growing tip) with earth, so that you end up with a very long, buried stem, all of which will develop roots. In early June, let the end grow up and support it as usual. Nip off all but one flower stem and allow it to set fruit. The fewer fruit it's allowed to grow, the bigger each one will be. So long as you keep the entire length of the buried stem watered and fed, you should end up with the biggest tomato you've ever seen.

## Turnip (early)



**Varieties:** ‘Red Early Flat-top’, ‘Snowball’

Maincrop turnips are easily grown in the garden during spring, summer and autumn, and can be stored for overwintering. Their flavour, however, is not as good as the small ‘early’ turnips, which you can sow in late summer / early autumn for a winter harvest in the polytunnel that will continue into early spring.

### Preparation

Turnips do best in full sun in rich, well-drained soil. They make an ideal plant for spots that were manured or composted for a previous crop such as cucumbers or melons.

### Sowing

Turnip seed can germinate in very low soil temperatures but germination is better, and faster, at 10-15°C. For an early harvest in spring, sow a few seeds direct in February, 1cm deep. They can be sown indoors in modules at the same time for later planting, in the event that pests snag all your direct sowings, and should be ready for harvest in April and May.

For harvesting over winter, sow seeds in modules from late July to early August, at two-week intervals. Plant into the tunnel beds as soon as the seedlings are large enough and cover with a fleece if pests are likely to be a problem. The resulting plants will have grown large enough to harvest during the cold weather, when they will stop growing and can be harvested at leisure.

Seeds sown in late August to mid-September will not usually mature before the cold weather sets in, but they will begin to grow again in spring and will provide plump turnips from mid-February until the end of March, when they are likely to bolt and become woody.

### Growing

Turnips need very little attention once they are established, other than the need to keep a close eye out for pests, but never allow them to dry out as this will cause them to bolt. If turnips are planted 15cm apart in 30cm rows they are all likely to be ready at around the same time. This is ideal for overwintering plants, but for plants maturing in the spring you can choose to extend the season by deliberately sowing them too close to mature properly (roughly 10cm apart with 10-15cm

between rows). Harvest the largest few as wonderfully sweet baby veg, and gradually thin the rows out as the roots swell.

## Harvesting and storage

For small varieties, aim to pick at around 5-7cm wide. The flavour of smaller turnips is so delicate that it is easily overpowered, but if they are left too grow too big they tend to become woody. However, some varieties are specifically bred to produce large turnips – check the packet. If your turnips are in danger of bolting or becoming too big, they can be dried. Trim off the tops and roots, and peel and slice them before blanching for five minutes first.

Young turnip leaves are among the finest greens you can grow, and are delicious lightly steamed. As they get older they tend to make the water in which they are prepared somewhat bitter. If it is poured off and replaced, the leaves will taste much better.

## Problems

**Flea beetles** and **club root**.

## CHAPTER NINE

# Seed saving

To many gardeners, seeds simply come in paper packets, and the job of actually *saving* the seed is done by somebody else far, far away. This is a great pity, because there is no reason why we cannot save seed from our own gardens, and we *should* be doing so because the commercial market is concentrating more and more on ‘F1’ hybrids. This is a bad situation, as genetically speaking these plants are the end of the road, as explained below. And it could get even worse: GM (genetically modified) crops are now mainstream in the United States, and if the European Union gets its way they will also become mainstream here. If there ever was a good time to start saving your own seed, it’s right now.

SPECIES	LONGEVITY	SPECIES	LONGEVITY
Aubergine	5 years	Cucumber	5 years
Basil	5 years	Dill	4 years
Beans, dwarf French and French	4 years	Fennel	4 years
		Lettuce	5 years
Beans, broad	3 years	Melon	5 years
Beetroot	4 years	Pak choi	4 years
Broccoli	4 years	Parsley	4 years
Cabbage	4 years	Peas	4 years
Carrot	4 years	Pepper	4 years
Cauliflower	4 years	Radish	5 years
Celeriac	4 years	Rocket	4 years
Celery	4 years	Spinach	5 years
Chard	4 years	Sweetcorn	3 years
Coriander	2 years	Tomato	4 years
Courgette	4 years	Turnip	4 years

## What does ‘F1’ mean?

The ‘F’ in F1 stands for ‘filial generation’ and the ‘1’ stands for ‘first generation’, so an F1 is a hybrid cross between two parent varieties in order to produce a plant that has some characteristics of both.

Today, F1 varieties are created primarily to serve the demands of the agricultural industry, which provides almost all the food found in the vegetable and fruit sections of our local supermarkets. So the supermarkets and farmers tell the agricultural industry what they want, and they go and create it.

Unfortunately, what the supermarkets want is for all the examples of a particular variety of fruit or vegetable to be of a uniform size; for them to be tough enough to ship far and wide without damage; and for them to have as long a shelf life as possible. Farmers need the whole crop to ripen at the same time, making the process of harvesting more efficient and freeing the growing area for the next planting. The seed merchants then have the job of selling these same seeds to the public, dressing them up as the latest, the biggest and the best – whereas in reality flavour, a long cropping season and nutritional value have all become secondary concerns. Even disease resistance is not always a primary concern for non-organic varieties, because when they are grown commercially the plants will be routinely sprayed with pesticide.

But, in fact, the biggest problem for the home gardener is something less obvious: you can’t save seed from F1 varieties, because the resulting plants will be a jumbled selection of the characteristics of the previous cultivars – assuming they germinate at all.

There are good reasons for growing non-hybrid, ‘open-pollinated’ varieties instead. Open-pollinated means that the plants propagate through pollination by insects, birds or wind, and the resulting seeds will be true to type with only minor variations. Open-pollinated varieties also demonstrate the other characteristics so valuable to the home gardener: long cropping seasons, great flavours, disease resistance and high nutritional value. And, last but definitely not least, genetic diversity – and therefore the ability to gradually adapt to the local conditions in *your* garden.

Roughly 3 per cent of the seeds and fruits that were around in the year 1900 are still available. The rest have quietly vanished.

This has happened because under EU law it is illegal to sell seeds of varieties that do not feature in the EU Common Catalogue, which is made up of national lists compiled by member states. Getting varieties on to the list is sufficiently expensive and complex to rule out amateur growers, so once big business is finished with a variety, it is removed.



It's difficult to keep a variety alive when even selling its seeds is illegal, and so plants that have dropped off the list are mostly lost. And once they're gone, they're gone for good – unless somebody who recognises their value manages to hang on to them as an 'heirloom' variety. If you know where to look, there are many of these available to home gardeners right now.

Despite the legal restrictions on the sale of seeds, any organisation can give seeds away to its members, even if they are not listed in the EU Common Catalogue. This loophole allows some small seed suppliers to call a percentage of each order a 'membership fee', allowing them to supply varieties that would otherwise vanish from the biodiversity of our vegetable gardens forever.

The Heritage Seed Library is a 'seed bank', a different kind of organisation that safeguards thousands of heirloom seed varieties on our behalf. Membership entitles you to an annual catalogue from which you can choose up to six varieties to grow in your own garden – and from which you can save seed to grow again the following year.

## Isn't it hard to save seed?

Saving seed is generally not that difficult. Some plants, such as peas and tomatoes, are self-pollinating and saving their seed could not be easier. Others will 'cross' (exchange pollen with other plants or varieties) easily and so have to be isolated, either by making sure they are the only one of that vegetable group allowed to flower in a particular year, or by physically isolating them from possible cross-pollination by visiting bees and other insects.

Saving seed is fun. It's extremely rewarding, and you will very often find that by saving your own seeds you can select for characteristics that are suited to your particular conditions – in other words, fine-tuning the variety for your own plot. Plants adapt, and if we always try to save seeds from the best we have, they are bound to get better and better every year. Instead of paying for a few seeds in a packet, you will have far more seed than you know what to do with. It won't cost you a penny, and they'll be absolutely fresh. In the hope that you are inspired to give seed saving a try, we have outlined in this chapter the methods involved for most of the common vegetable groups, based on the type of flower they produce or the ease with which they will cross with something else.

Each of the methods has a roman numeral, indicating how easy it is to save seed from it. This numeral also appears in the 'saving seed' icon at the top of the plant monographs in Chapter 8.

The roman numerals indicate categories from 'easy' (won't normally cross and/or are self-pollinating) to 'moderate' (need work to prevent cross-pollination

and/or have to be overwintered, etc.) to ‘difficult’ (other complicating factors that make saving seeds more work).

## Seed storage

Seeds should be saved only when they are *completely* dry. Mould will kill them, and in an enclosed space it will spread very quickly indeed.

An excellent seed-drying method is posted on the Real Seeds website ([www.realseeds.co.uk](http://www.realseeds.co.uk)), where they suggest baking enough dry rice to half fill a jam jar and pouring it in once it's completely cool. Put the seeds into a bag made from the foot of an old pair of tights, tie it shut with a rubber band, and put it in the jar on top of the rice. Screw the top down tightly and leave it for a couple of weeks. The rice will pull any remaining water out of the seeds, which are then ready for storage in an airtight container in a cool, dry, dark place – NEVER in the polytunnel, which gets much too warm even in winter.

## I: Easy

### Aubergine

While aubergine seeds look very similar to those of tomatoes, they have no gel coating and there is no need to ferment the seeds in a jar. Simply scoop them out from a healthy, but *very* ripe fruit, rinse them, and leave them to dry.

Aubergines will readily cross with other aubergine varieties, so grow only one species at a time or isolate plants for saving by covering them with light fleece during flowering.

### Basil

Basil varieties will cross, so grow only one variety or keep pulling the flower stems off the others until the plant has set seed. Insects will do all the pollination for you. Leave the stems to go brown and dry, and the seeds can then be rubbed off by hand. It's a good idea to label promising flowering stems with thread as the seeds set, as once they dry out they all look the same. Once the seeds are completely dry, they can be stored.

### Beans, dwarf French and French

These are self-pollinating. Pollination takes place before the flower even opens, so there is no risk of crossing. This means that even if you plant different varieties right next to each other, you can still keep the seed.

Do not take any of the pods off plants for seed saving, but wait until they ripen and dry on the vine. If the weather turns damp, remove the ripe pods from the plant and dry them indoors. Once dry, break them to shell the beans.

**Note:** Beans are big seeds and take a long time to dry thoroughly. Only store them when they are *completely* dry.

## Coriander

Coriander is an ‘umbellifer’ (see ‘Easy to moderate’, overleaf) that grows and flowers in the same season. While the seeds take some time to mature fully, it’s an easy plant to save from. Once the seeds are dry, remove them by hand and store.

## Lettuce

Lettuce is self-pollinating and will generally breed true unless you deliberately set out to create a cross. As they bolt, lettuces develop a central stem that can eventually grow to well over a metre tall. This produces a cloud of small flowers which turn into tiny dandelion-like puffs of wind-borne parachutes, at the base of each of which is a seed.

The main difficulty in trying to collect seeds, especially from tunnel-grown plants, is the likelihood of mould. This will appear quickly in humid conditions and affected flowers should not be collected. Because of this risk, don’t wait for the entire flowering head to dry, as it will ripen in stages. Cut the flower stem when half of the flowers (or even less if mould is a problem) have gone to seed. Hang it upside down in a paper bag to dry completely before collecting the seeds, which can then be separated from the fluff by gentle winnowing.

## Peas

Peas produce self-pollinating flowers and generally breed true even when grown in close proximity to other varieties. Use the same method as for French beans (see left).

## Pepper

Peppers will cross with other peppers, so if you’re growing a combination of hot and sweet, beware – you may be in for a surprise the following year. If you grow more than one variety, cover seed plants with light fleece.

Once the pepper has ripened completely, cut it open and remove the seeds. Dry and store.

## Rocket

The most difficult thing about trying to collect seed from rocket is resisting the temptation to eat either the flowers or developing seed pods, both of which are wonderful additions to salads.

Whether you’re collecting from plants sown in the spring or from an overwintering crop sown the previous year, save seed only from plants that are late to

flower. Rocket always bolts too soon, and the more you can encourage a ‘non-bolting’ characteristic in your own seed, the better.

So long as there aren’t any other brassicas flowering at the time, rocket will breed true and is very easy to collect seed from. Let the pods dry out on the plants, then cut the flower stems and hang them upside down to dry completely. The pods can then be broken apart by hand (but wear gloves, they’re sharp) and the seed collected and stored.

## Tomato

As tomatoes are self-pollinating they’re one of the easiest plants from which to save seed. Collect fully ripe, healthy fruit that has not split. Do not collect from plants suffering from tomato blight as this may have already infected the seed. Scoop out the seeds and put them in a jar of water. Give the jar a shake and leave on a windowsill for three days, during which a fungus will form on the surface. This digests the gel coating on each seed, which if left in place would inhibit germination. After three days, remove any floating seeds (which will not germinate) and pour off as much water as possible. Refill the jar and pour the water off again, and repeat until the water remains clear. Strain out the seeds and lay them on newspaper or paper towel to dry. If you pat them dry and then transfer them to a harder surface they will be easier to collect, but make sure they don’t stick together.

## II: Easy to moderate

With the exception of dill, the plants in this group are biennials (i.e. they live for two years) and care should be taken not to collect seed from plants that have flowered in their first year. All of them produce an ‘umbel’, a flower that looks something like an upside-down umbrella minus its cover. Collectively, they are known as ‘umbellifers’.

Many of them will cross with each other or with Queen Anne’s Lace, a wild carrot of no culinary value whatsoever. As this is a prolific and common roadside weed, it is important to isolate seed plants as much as possible.

Cut the umbels as seeds ripen, and hang them upside down in a paper bag until all the seeds are dry. Rub them off by hand, but wear gloves, as some have tiny spines that can cause skin irritation.

## Carrot

While carrots *can* overwinter in the ground, it’s better to dig them up and store in the same way as beetroot (see page 76), then you can choose the best to replant for seed. Plant the roots in a block in late February the following year, leaving the crown slightly above ground level, and allow them to flower. They are insect-pollinated, so make sure there are no other flowering umbellifers in the area.

Carrots suffer from what is known as ‘inbreeding depression’, which means you should save seed from as many different plants as possible.

### **Celery, celeriac, fennel and parsley**

These should be treated in the same way as carrot (see left), but are less prone to ‘inbreeding depression’.

### **Dill**

Save seed only from the last plants to bolt. As dill can be tall, there is a risk of the seeds being scattered from a great height before you’ve managed to collect them. Enclosing the ripening flower head with a paper or muslin bag is a good way to avoid getting volunteer plants the following year.

## **III: Moderate**

Beetroot and chard will cross with each other, being closely related, but if you keep them somewhat isolated – perhaps growing one variety in the tunnel and the other in an outside bed – you should be able to save seeds with no problem at all. Both plants grow a central stem on which many seed clusters form. They are biennials and you should avoid saving seed from any plants that bolt in their first year.

### **Beans, broad**

Treat as for French beans (see page 152) except that, because isolation is difficult, you should grow only one variety each year. Although saving the seed is a simple matter of leaving some plants to set seed without harvesting any, pollination is mainly carried out by bees – so if anyone else is growing beans within 800m, yours could easily cross with them.

### **Beetroot**

Beetroot may not overwinter well in the ground, and fares better if lifted and stored. Twist off the leaves, leave the taproot, and store in damp sand in a cool, dark place. The roots will quickly sprout and bolt if replanted in early spring.

### **Brassicas**

#### **1) Cabbage family (*Brassica oleracea*)**

Broccoli, cauliflower, cabbage, kohlrabi (for radish, see overleaf)

#### **2) Turnip family (*Brassica campestris*)**

Turnip, pak choi

All these are biennials, so choose only plants that flower the following year. They are insect-pollinated, mostly by bees, and so they will need isolating from any others in the same group that are flowering at the same time. If you don’t do this, there’s bound to be some cross-pollination as the insects move around from plant to plant.



The flower stems of brassicas can become quite tall, and the seed pods at the base of the stems develop and ripen first. When at least half the pods are dry and brown, cut the stem and hang it upside down to dry further. Break the pods apart by hand (wear gloves, they're sharp) and collect and store the seeds. Collect only from pods that have had time to ripen and dry completely.

Because members of this group cross so readily, you can try creating your own new variety. Plant two varieties of the same plant that have characteristics you like, fairly close together, using successional sowing to get them flowering at the same time, and collect seed as described above. When these are grown they will produce a variety of results, and you should save seeds only from the plants closest to the combination of features you wanted.

In the following years you can continue to fine-tune the selection until eventually you have a type that breeds true. It requires patience and dedication, but it's this process that has produced all the amazingly different varieties available to us today.

## Chard

Chard stems can be over 2 metres tall. Unusually, the flavour of the leaves does not change while the plant is bolting and these can still be picked, helping to tide you over from one year's crop to another. However, this should be avoided if you're planning on saving seed, as it takes energy from the plant.

Cut the stems near the ground as seeds become ripe, and hang them upside down to encourage further ripening. Strip seeds from the stem by hand, and store when completely dry. To ensure genetic diversity, save seed from at least six plants.

## Radish

While very close in seed and early leaf appearance to many other brassicas, radish will cross only with other radishes. Because it is insect-pollinated, it requires isolation from other varieties; alternatively, grow only one variety for seed each year.

Radishes can produce a flower stalk a metre tall. When the seed pods are dry, pick them and break by hand (wearing gloves) to release the seeds. Remove the larger debris, and winnow the rest to get clean seed.

# IV: Moderate to difficult

## Spinach

Spinach is 'dioecious', meaning that it produces male and female flowers on different plants. It also crosses very readily with other spinach varieties, so you

should grow only one type for seed at a time. Cross-pollination occurs so easily that commercial growers allow *five miles* between species.

Plant early in the spring and pull out any plants that bolt early. After the plant sets seed, allow as much of the foliage as possible to go brown, then pull and hang the plant upside down. Mice adore ripening spinach seed and might eat the whole lot before they're ready to harvest. If there are mice in your plot, you may need to protect the flower stalks with fleece while the seed develops. Once the whole plant is dry, rub the seeds off by hand.

## V: Difficult

### Cucurbits: cucumber, melon and courgette

Cucurbits are 'monoecious', meaning that they produce male and female flowers on the same plants. Female flowers have a short stalk with a baby fruit just behind the flower, whereas male flowers have a long stalk and no baby fruit. Once you have seen examples of both, the difference is impossible to miss, and most plants bear male flowers for quite a while before the females appear.

All cucurbits are insect-pollinated, but if there is a possibility of crossing it is best to isolate the female flowers by enclosing the whole section of stem in a loose envelope of light fleece. You can then hand-pollinate them by transferring pollen from the male to the female flowers with a paintbrush, putting the fleece back afterwards to prevent further pollination, or follow the instructions given in Chapter 8 (see page 113).

#### *Cucumber*

Cucumbers cross readily with other varieties of cucumber but not with anything else, so no isolation is necessary unless you are growing more than one variety. Insects will usually do the fertilisation for you. Cucumbers should be left on the vine far beyond the stage at which they would normally be harvested, until they turn yellow or orange, to give the seeds plenty of time to form completely. They can then be cut open and the seeds stripped out with a spoon, after which they need to be treated as for tomatoes (see page 154) to remove the seed coating.

#### *Melon*

As with cucumbers, melons can cross only with other melons, and so isolation is not necessary unless you are growing more than one variety. They should be picked when very ripe, and then allowed to sit for another few days before you harvest the seeds. There is no need to remove the seed coating, so the seeds simply need to be washed, dried and stored.

### *Courgette*

Courgettes are easily crossed, accepting pollen from any other cucurbit including squashes, melons, cucumbers and other varieties of courgettes, and need careful isolation and hand-pollination to breed true. Thankfully, their flowers are quite robust, and you can keep them closed using a loop of twine or a small rubber band.

Look for fat flower buds that are turning yellow, indicating that they will open within a day or two, and use twine or a rubber band to keep them closed. The next day, pick and open a male flower, remove its petals and use it to transfer pollen to a female flower. Tie the female flower shut again to keep out any other visitors. As soon as the fruit begins to develop the flower will wilt, and should be removed in case it goes mouldy. Pick the fruit when it is completely ripe, store until it begins to soften, then cut it open to harvest the seeds. Rinse and dry them, and store in a cool, dry dark place.

### **Sweetcorn**

The main difficulty with saving sweetcorn is that to ensure crop vigour, at least 200 plants should be grown in a block, and the seeds saved from the 100 best plants. If you add to this the difficulty of growing an open-pollinated (and therefore slower-to-ripen) variety in the UK climate, plus the ease with which sweetcorn will cross-pollinate, you can see that seed saving can really be accomplished only in a large polytunnel, where enough space can be given to a single crop such as this, and where it can be isolated from wind-borne pollen from elsewhere.

If you *are* able to give this a try, wait four to six weeks after you would have picked the cobs to eat. If the growing season isn't long enough to allow this, the cobs can be picked and the outer leaves pulled back, then hung upside down in order to complete the drying process. To remove the seeds, hold the ear firmly above a container and make a twisting movement with your hands.

## CHAPTER TEN

# Dealing with pests and diseases

One of the ways in which polytunnel growing is different from managing an outdoor plot is in the control of pests and diseases. The polytunnel environment seems to deter some pests, but provides others with ideal conditions to breed very rapidly, which means that without prompt action a minor infestation can quickly become a serious problem.

Since there is no rain to wash chemical residues down to the subsoil, the use of pesticides inside a tunnel is a really bad idea. Even organic options should be treated as a last resort, since they typically affect many more species than their intended targets. Happily, provided that you keep a close eye on the plants in your polytunnel – and you most definitely should – intervention with insecticides is very rarely, if ever, necessary – so long as you remember the key points to pest management as follows.

## Keep pest habitat to a minimum

Or, to put it another way, keep your tunnel free of all clutter. This includes weeds, fallen leaves and flowers, unused plant pots, old grow bags and anything else that isn't actively in use, as these give refuge to everything from woodlice and slugs to mice.

## Give plants a good start

Plants that are able to grow away strongly are much less likely to be attacked by pests. Starting vulnerable seedlings such as brassicas in modules is a good idea, but remember that plants grown without adequate heat or light will be much more prone to problems. Keeping the tunnel beds in good health (see Chapter 11) is also extremely important.

## Watch what you bring in

When you bring any plant into the garden from outside, there is always a risk of introducing disease. To be as sure as possible about the health of incoming plants, quarantine them in a greenhouse or cold frame, or on a sunny windowsill, for a couple of weeks. Take them into the polytunnel only once you are sure they are healthy. Garden centres and other commercial sources have a professional

interest in making sure that the plants they sell you are in excellent condition, but friends and neighbours are much less good at spotting problems. Always treat donated plants with caution and *never* accept donated brassicas, or you risk introducing club root to your garden.

## Water and air

Don't just set up an automatic irrigation system and leave it at that, as supplying the right amount of water means keeping things under constant review and providing at least some top watering, with extra for thirstier spots. Keep conditions in the tunnel as pleasant as possible for your plants by ventilating it as much as possible during the day, except when conditions are cold. Maintaining adequate ventilation and avoiding overcrowding are essential to avoid botrytis and other mould and fungal infections.

And, most importantly . . .

## Watch things closely

Noticing the first colony of aphids or the first mouldy leaves makes all the difference: a few leaves pinched out and the job is done. We can't emphasise this enough.

## Pests A–Z

### Ants

Ants are usually bad news in the tunnel, since they can undermine plants, invade pots, farm aphids and drive away beneficial insects. They can also be extremely difficult to remove, and efforts to dig out or flood the nest are not reliably successful.

If the ants are not causing too much of a problem, you may need to defend only particular plants from aphid farming. Just clearing the plant of aphids probably won't help for long until you have denied the ants access by putting a sticky ring of grease, petroleum jelly (Vaseline) or non-drying glue around the stem, and making sure they can't cross from neighbouring plants. Pot-grown plants can be defended by putting them on a brick surrounded by a 'moat' of soapy water (which ants cannot cross) in a large plant saucer.

As a last resort, removing the whole nest is the only option. Regularly disturbing the earth with a garden fork sometimes makes ants give up and move on, as does repeated flooding with cold water. If these are not successful, put down a bait of borax mixed with sugar solution each evening, using a removable bait station



such as a coin with a plant saucer over it. This works only when the ants are seeking sugar, and if it fails, commercial biocontrols are available.

## Biocontrols

‘Biocontrols’ is a term given to a range of biological control methods for dealing with a particular pest. Examples of biocontrols are the introduction of ladybirds to combat aphids, or nematodes (microscopic worms that live in the soil) to kill slugs. They are considered a much better alternative to pesticides as they are completely organic and don’t leave toxic residues behind. If they are used over a large area, resident predator species starve or move away in search of food, and the balance of the local ecosystem may be disturbed. In the confines of an average polytunnel, however, this is less likely to be a problem.

## Aphids

Aphids, also referred to in Britain as blackfly and greenfly, are a very successful group of insects, largely because they breed so very rapidly. Spotted early, they are not a problem in the tunnel, but if allowed to spread unchecked they can cause serious damage by distorting growth and spreading moulds. It’s worthwhile knowing that each of the many different aphid species feeds on particular groups of plants, so if you spot a colony in the tunnel, check all similar plants for further colonies immediately.

Aphids are most likely to take hold on soft, tender growth. This usually means that they go for the growing tips of plants, but plants that are weak or have been given too much nitrogen (leading to soft, sappy growth) are also prime targets. The best defence against significant aphid colonies is a lively community of predatory insects such as ladybirds, hoverflies and lacewings, which should be frequent visitors to your tunnel, particularly if you provide plants such as the poached egg plant (*Limnanthes douglasii*) to attract them. In severe cases you can buy ladybird eggs as a biocontrol, but make sure they are a native species.

If aphid colonies are spotted, cover any uninfested plants of the same type with horticultural fleece to stop them from spreading. If ants are present, you will also need to deal with them. Spray the insects off the plants (preferably early in the morning when they are inactive) using a very fine jet of water under quite a bit of pressure, but try not to bruise soft young plant growth. If this is not possible, nip out the affected growth and remove it, or bring in a few ladybird larvae from outside, which is surprisingly effective. Ladybird larvae look completely unlike the adults. They are about half a centimetre long and have dark grey, segmented bodies (like little grey alligators) with some yellow spots down each side. Make sure you can identify these creatures so you don’t accidentally eject them from your tunnel.

## Blight

The worst problem for all potato and tomato growers in the UK is blight. This is the same wind-borne fungal disease that caused the Irish potato famine, and there is no cure. Whenever the outside weather turns warm and wet for a few consecutive days any time from early July, the spores won't be far behind. These periods of blight-favouring weather are known as 'Smith Periods', and you can register online to receive blight warnings for your area (see the Potato Council, Resources section).

If blight gets into the outdoor part of your plot, deal with it promptly by burning all affected foliage. Do not go anywhere near your tunnel after dealing with infected plants, as the spores will be on your hands, shoes, clothing and hair. Shower immediately, launder your clothes and rinse your shoes with soap and water or a 10-per-cent bleach solution. Then spray any tomato or potato plants in the polytunnel with a bicarbonate of soda solution (see Chapter 7, page 58) to reduce the chance of infection taking hold.

Bordeaux mixture (a traditional copper-based remedy) also has some effect in the early stages of blight, but although commercial organic growers are allowed to use it as a treatment of last resort, many gardeners are not happy to do so because it is moderately poisonous in general but especially so for bees and worms. Remember also that, once introduced into the enclosed space of a tunnel, potential poisons such as copper are difficult if not impossible to remove.

If the disease does get into the tunnel, all you can do is remove any affected growth and burn it, and continue spraying with bicarbonate every few days to slow down the spread of the infection in the hope of saving as much of the harvest as possible. In the case of potatoes, if the infection is widespread cut the whole plant off at ground level and leave the earth undisturbed for at least two weeks and more if possible, avoiding top watering, which may carry the spores down to the tubers. After this the tubers can be lifted and stored, but will need to be checked regularly to ensure that infection has not caused any to rot. If care is taken, the loss will be only a small percentage of the whole.

Do not grow potatoes or tomatoes in the affected soil for at least three years. Pay particular attention to sanitising the tunnel the following February, and dig out any volunteer potato plants as they appear before they can release further spores.

## Botrytis

This mould affects a wide variety of plants and is a particular problem in polytunnels, because of the high humidity. To avoid it, do not allow planting to become crowded, remove all plant debris as it forms, and keep the tunnel well ventilated, particularly in the autumn and when humidity levels are high.

Botrytis can spread quickly when conditions favour it, so if you spot it early, cut away any affected material and compost it. If this is not possible, spray with bicarbonate of soda solution every few days (see Chapter 7, page 58).

### **Cabbage root fly**

This pest is hardly ever a problem in polytunnels, but if it is common in your area you may wish to put protective collars around the stems of brassica seedlings. These are discs with a straight cut running from the edge to a hole in the centre. Alternatively, grow plants entirely under fleece.

### **Carrot fly**

Again, this pest is hardly ever a problem in polytunnels. If it affects your outdoor plot, grow your carrots under fleece using a cloche tunnel (see Chapter 7, page 58) to avoid squashing the fragile young seedlings.

### **Caterpillars**

Growing brassicas organically without some sort of protection is a heartbreaking exercise in futility. Give the seedlings a good start in clean compost, ideally pH 6.5 to 7, in modules high on a shelf or bench where most pests cannot reach them. The cabbage white butterfly can be a problem for any brassicas between late April and September.

Once the seedlings are planted in the beds, protect them with netting that is held away from the leaves with some kind of support, or protect the whole tunnel by screening the doorways (see Chapter 6, page 53, 'Pollinators or brassicas' box). If you simply drape the net over the plants, you will find that butterflies can lay their eggs through the holes perfectly well. Even if the plants are netted, it is crucial that you check them at least once a week during butterfly season, because the butterflies will soon find (and exploit) any gaps or holes.

Regardless of what manufacturers may tell you, horticultural fleece is less suitable than netting for excluding butterflies, in summer because of the heating effect, and in spring because of the small but significant loss of light.

### **Cats**

See Chapter 2, page 24.

### **Celery fly**

This pest is rarely seen in polytunnels, but if you see blistering on the leaves it may indicate an attack. Remove affected stems; the plants should be able to grow back quickly, provided that they are otherwise healthy.

## Club root

If your brassicas are attacked by this notorious microscopic disease, it's seriously bad news. Affected plants wilt in warm weather, and in the heat of the polytunnel they usually die fairly quickly. When the plants are lifted the roots look like knobbly stumps. Sadly, the infection is both long-lived (microscopic spore-like 'cysts' can live in the soil for up to 20 years) and easily spread on plants, tools, clothing and shoes. It's not something you can get rid of, but something that you have to learn to live with.

The most important aspect of club root control is *prevention*. Always buy brassica seedlings from reputable 'clean' sources. *Never, ever* accept brassica seedlings from well-meaning friends and relatives. Better yet, grow all your brassicas from

### Club root

If you hear of club-root infection nearby:

- Watch existing plants carefully.
- Earth up around the stems with clean compost to encourage further healthy root development.
- Begin giving the plants a foliar feed such as seaweed extract, and continue until they are harvested, following the manufacturer's directions.
- Avoid going anywhere near the infected plot, or accepting anything from it.
- Eliminate alternative wild club-root hosts, which include charlock, wild radish and shepherd's purse, from the outdoor plot.
- If you grow on heavy or waterlogged soil, consider building raised beds or digging in plenty of grit, as club root does best in wet conditions.
- Pot any future brassica seedlings up to 8cm or even 12cm pots, to make sure they are as well established as possible before planting.
- Avoid using mustard as a green manure crop in the outside plot, as it can act as a host for the disease.

If your plants are affected by club root:

- As soon as you detect the disease, remove all brassicas from the vicinity and burn them. Do not add them to your compost system.
- Completely remove all the topsoil from the affected bed, and dispose of it well away from the vegetable garden.
- Lime the hole thoroughly before filling it with fresh, uncontaminated soil.
- Immediately afterwards clean all your tools and the soles of your shoes with the plant-based cleaner Armillatox, which is thought to inactivate the spores. Be aware that it stains clothing.

seed to avoid even the chance of bringing infection into the garden. Longer-lived brassica plants, such as cauliflowers, should always be given a good start in clean compost, preferably with a pH between 6.5 and 7, and planted into the soil bed only when they have five true leaves.

Once the soil is infected, all brassica plants, including mustard greens and daikon, will struggle to cope. To get smaller but still worthwhile harvests in future years, use only varieties sold as ‘club-root resistant’, or rework your tunnel plans to avoid these plants entirely.

## Cutworms

Cutworms kill young plants by chewing through the roots and stems just below ground level, and are voracious feeders. They are the larval form of the turnip moth, which is fortunately nocturnal. If you shut the tunnel doors an hour before dusk, even in warm weather, you are unlikely to encounter them.

## Earwigs

Although earwigs can be irritating because they nibble the edges of leaves and petals, the damage they cause is usually only superficial, so unless you are growing flowers there is no need to worry about it. The exception to this is the emerging seedlings of direct-sown plants, which can take heavy casualties particularly if there is a mulched area (which earwigs like) nearby. If you need to reduce the earwig population in the tunnel, put traps down overnight and remove them in the morning for a good shake-out, well away from the tunnel. You can use crumpled pieces of damp cloth or rolls of corrugated card, but 15cm-long offcuts of soaker hose work particularly well (the recycled rubber stuff works best). Dip them in water and leave them on the soil surface in trouble spots in the evening, then collect them in the morning and shake the earwigs out elsewhere. Repeat nightly until you’re not catching any more.

## Eelworms

These tiny pests are too small to see with the naked eye, but the damage is obvious enough: young onion plants are swollen and twisted, and if allowed to grow on they will produce a soft bulb that tends to split at the base. There is no cure for eelworm attack – lift and burn the affected plants as soon as you notice them, and do not grow any alliums, beans or carrots on the affected patch for the next two years.

## Flea beetles

Flea beetles nibble tiny holes in the leaves of young plants, particularly brassicas, and, while the damage is usually only superficial, a serious attack can set plants back severely. To reduce their numbers, coat one side of a piece of card with anything sticky (grease, lard or even jam) and pass it over the top of affected plants while disturbing the leaves with your other hand. The beetles jump when



disturbed, and significant numbers will get stuck to the card. Repeat until you're not catching many.

As soon as you find flea beetles anywhere in the tunnel, you should immediately cover any direct sowings with fleece, and make sure that module-sown plants are well developed before moving them to the soil beds. Flea beetles become inactive in autumn but overwinter in leaf litter and similar debris, so keep the tunnel clear of this at all times.

## Leatherjackets

Although crane flies (the adult form of the leatherjacket) are likely to be frequent visitors to the tunnel, leatherjackets are usually a problem only in newly erected tunnels on ground that was previously under grass. To catch them, water the soil thoroughly and cover it with black plastic. The next morning many of the larvae will have come up to the surface and can be picked off.

## Leek rust

Leek rust is a fungal disease that can affect all alliums, with the exception of elephant garlic. It is wind-borne and can therefore travel long distances. Whereas onions may not be affected very badly, garlic is most susceptible and much more likely to be seriously damaged. Don't use bulbs from affected plants as seed for the following year, do not grow alliums of any kind in a bed that has been infected for three years, and destroy any volunteer plants that come up in that bed during this period. Avoid growing onions, shallots and leeks adjacent to garlic, as that is where an infection is likely to start – and from where it will then spread.

## Lettuce root aphids

Lettuce root aphids are a serious but uncommon problem for lettuces, usually affecting only gardens with nearby poplar trees, the winter host of this species. Affected plants are stunted with discoloured leaves and will wilt if conditions are even slightly dry. The aphids are mostly underground, but ants can spread them to other plants. Remove any affected plants, roots and all, as soon as you suspect this pest. While these are safe to compost, do not grow lettuce in the infected spot for at least a year.

## Mice

Field mice are likely to be infrequent visitors to the tunnel, but are attracted by sowings of large seeds such as sweetcorn, beans, peas and squash. If the tunnel is kept clear of clutter, they are unlikely to take up residence, but may come back nightly as long as the food supply lasts. Trapping is the only reliable option, but you can reduce the likelihood of a problem in the first place by starting large-seeded plants in a mouse-proof location, such as a suspended shelf or staging.

## Moles

Moles can cause a great deal of damage as they burrow through the soil, and they inevitably target the richest soil – the growing beds – because this is where the worms are. Moles dislike vibration in the soil, so if they are nearby, get hold of a ‘mole-chaser’ windmill (available from Northern Tool in the UK – go to [www.northerntooluk.com](http://www.northerntooluk.com)) and site it close to the tunnel. While you are trying to persuade a mole to relocate, resist the temptation to disturb runs and molehills. Most of the vandalism perpetrated by moles occurs during the digging out of new tunnels, and once these are established relatively little damage is done.

The ornamental plant *Allium moly* is also reputed to deter moles, so it may be worth planting some clumps of bulbs around the tunnel and replacing them every two years. If all else fails you may need to consider trapping, but this is tricky and best done by a professional.

## Moulds

Treatment of moulds in the tunnel is as for botrytis (see page 162).

## Onion fly

Onion fly is unlikely in a polytunnel but can be a pain nevertheless. The risk is reduced by growing plants from sets rather than from seed. Affected plants will usually yellow and die some time in May. If you see evidence of maggot damage, cultivation of the soil around the plants until the end of May will help.

## Peach leaf curl

Peach leaf curl is a fungal disease causing severe deformity of developing leaves and the loss of both fruit and flowers. A single attack is unlikely to be fatal to the tree, but as the disease overwinters in cracks in the bark it can re-infect the tree the following year. Thankfully, peach leaf curl is much less likely in plants grown under cover, and choosing a resistant variety means that you will probably never see it. If you are unlucky enough to get it in the tunnel, remove all affected leaves immediately and burn them. Trees that are otherwise in reasonable health will produce a second flush of foliage that should not be affected, but don't allow them to fruit until the following year.

## Pea moth

Pea moth attack is very unlikely in the polytunnel, since the adults fly only between May and August – months when there is no need to grow this vegetable under cover. The moths are also largely nocturnal, and if you shut the tunnel doors an hour before dusk they are unlikely to get in.

## Powdery mildew

Courgettes and other cucurbits are especially prone to this fungal disease, which is associated with inadequate or patchy watering. Keeping the soil in good

condition, avoiding crowded planting, and using a mulch to lock in moisture will make attacks much less likely. If you suspect an attack, take a good look at the leaves, as some varieties get silvery patches that are sometimes mistaken for this disease. If it is mildew, spraying the plant with bicarbonate of soda solution (see Chapter 7, page 58) or one part milk to ten parts water will help to slow it down and you will still get plenty of fruit. It's still possible to get fruit from plants where all the leaves, except perhaps a very few of the youngest, have mildew. The fruit itself usually remains completely unaffected. However, if you can, remove affected leaves as mildew develops and spray the plant as often as possible. Try not to get the leaves of other plants wet in the process.

## Rabbits

As mentioned in Chapter 2, the best way to avoid a serious and rapidly growing rabbit problem is to ensure they never get inside the tunnel in the first place. To keep them out, all you need are a few screws, a couple of short lengths of batten and a piece of wire mesh roughly 35-40cm tall, and wide enough to stretch across the tunnel doorway. Chicken wire is fine, but make sure that it has a neat top or it will be forever snagging your clothes when you step over it.

Holding one end of the mesh against the inside of the door frame, screw one of the lengths of batten down on to it to while holding it firmly in place. Repeat on the opposite side of the door, making sure the mesh is tight enough across the doorway to prevent rabbits from pushing underneath. You will need to step over it every time you go in or out, but it's better than rabbits!

If you are worried that rabbits might push underneath the mesh, thread a short length of bamboo through the bottom edge to hold it rigid.

## Red spider mite

Although less likely to be a problem in polytunnels than in greenhouses (because of the higher humidity in the tunnel), red spider mites can attack almost any plant. Because they are so small – even the adults are barely visible – they are often missed until a network of fine webbing appears on affected leaves, by which time the infestation is severe.

The early sign of attack is a fine, pale mottling on the upper surface of leaves. If you see this, use a hand lens to check the underside of the leaves for mites (which are actually a yellowish-green for most of the year), and move any affected pot-grown plants outside, where predators and the elements will usually kill the mites within a few days. If this is not possible, nip out the damaged growth or purchase a biocontrol.

## Sciarid fly (fungus fly)

This very common greenhouse and polytunnel pest can cause severe infections in soil beds. If your area is prone to sciarid fly, then as a preventative measure place grease-coated pieces of yellow card at a low level in your tunnel, perhaps attached to seed markers; adult sciarid flies are attracted to the colour yellow, and they will stick to it along with various other flying species. If you end up with a serious infestation, stop surface watering for long enough for the top layer of the bed to dry out completely and hoe it to provide a 'dust mulch'. If this fails, using a biocontrol may be your only option.

In containers, sciarid fly can be physically removed by taking out the top 10cm of compost and replacing it. During an infestation, containers can be protected by covering the surface area around the plant with horticultural sand, making it a less inviting area for eggs to be laid, and cutting back on watering as far as possible without stressing the plant.

## Slugs and snails

Slugs and snails are the two most serious vegetable pests, and, owing to our unique climate, the UK is arguably the slug capital of the world. By far the most important factor in controlling their numbers is to reduce the habitat available to them. In the tunnel this means removing leaf litter, plant debris, weeds and so on, but the area around the tunnel is important too: both slugs and snails hunt by scent, and although they move slowly they can still cover a considerable distance (around 7 metres) in a night. Avoid having overgrown areas near the tunnel if you possibly can.

The second most effective measure is performing a 'slug patrol' soon after dark during times when the animals are active, which will be on warm, humid evenings throughout the year. If you see them on paths and grass outside, check the tunnel. Peak activity is usually in May, but if you want to keep things under control we suggest you start as early as March, otherwise clutches of eggs may be laid, making work later in the year.

After habitat elimination and slug patrol, copper tape is also an invaluable slug control method (see overleaf). Nematode biocontrols are also available, which, though effective, are expensive to use. Total control through any method, however, is extremely unlikely, so you also have to be able to protect individual plants, particularly when they are young. That said, not all slugs are bad. The leopard slug (pictured overleaf) is actually a friend to the gardener because it prefers eating other slugs to young plants, and will hunt them down.

Never use slug pellets based on metaldehyde or methiocarb, which kill a wide variety of other small animals including beetles and toads, which normally help to control slug numbers by eating eggs and juveniles. Without rainfall to wash

chemical pesticides out of the soil, they may persist for a very long time in the polytunnel, so if you must use slug pellets choose organic ones, which are harmless to other wildlife and break down to iron and phosphate.

Slugs can be baited by leaving small amounts of oatmeal or bran under upside-down plant saucers, where they may stay for removal in the morning. They also



love beer and milk, and if you leave a plant saucer of either on the soil they will be attracted to it and drown. However, beneficial insects are also likely fall in, so don't bury the container so that its edge is flush to the ground – leaving a lip will turn back all but the most determined beetle, but won't dent the enthusiasm of slugs. The liquid will need replenishing every few days.

Materials such as broken-up eggshells and sharp sand are reputed to deter slugs if sprinkled around the base of plants, but they are not always effective and have to be replaced if you wash them away when watering. Wood ash scattered around plants will certainly deter slugs but, as it will affect the pH of the soil eventually, we do not recommend it. Slugs prefer to cross damp, smooth surfaces rather than dry, rough surfaces, so gravelling paths in the polytunnel and keeping them bone dry helps to stop slugs from moving around.

Copper tape is a much more effective slug barrier, provided it is kept bright and clean. Slugs dislike crawling on bright copper, as a chemical reaction between the metal and their slime sets up a mild electric current. (This is the same process that happens when someone with metal fillings in their teeth bites down on a piece of aluminium foil – no wonder the slugs avoid it.) The tape is available in rolls in widths from around 2.5cm. Stick a strip of tape to a 5cm-wide ring cut from a plastic bottle. The plant can then be protected by the ring, the clear part of which is pushed into the ground to anchor it in place.

If your tunnel doorway has a wooden sill, you can put copper tape around the inside edges of the door frames to prevent any further slugs from coming into the tunnel from outside. If you know that the tunnel is slug-free when you do this, it will remain so.

A bottle cloche (a plastic bottle with the top and bottom cut off and a strip of copper tape around the middle) creates a barrier that will usually deter not only slugs but rodents as well. Push the bottle slightly into the ground around young plants or seeds. This is an excellent way of protecting broad beans, which may

otherwise get dug up by mice before they've even had a chance to germinate, and can be left in place for the entire life of the plant.

Copper tarnishes over time, and then slugs can cross it. It can be brightened up again by rubbing it with glass paper or something similar – a green dish scrubber works very well. If the tarnish is very heavy, a few drops of vinegar will help. However, once it has been polished (and especially if you used vinegar), the surface will tarnish faster than before. Make sure you rinse the vinegar away immediately after cleaning, and be prepared to shine it up again a few weeks later.



## Thrips

Thrips are tiny insects that affect a wide variety of plants by sucking out cell contents, causing scarred and distorted growth and fruit. Insecticidal soap and plant oil-based sprays are common organic remedies, as are commercially available predatory mites.

## Vine weevil

Usually only a real problem in pot-grown plants, adult vine weevils feed on the edges of leaves. However, the real problem is the larvae, which feed on roots and can kill the plant. Lift suspect plants from their pots as soon as possible after purchase and have a good look around to see if either larva or adults are present. If they are, replant in fresh compost after knocking all the existing earth from the root ball.

Adult vine weevils are mainly active at night and are surprisingly nimble, dropping to the ground if startled by movement or bright light, so trapping them is much easier than trying to catch them. Use sticky barriers such as tree grease around the base of plant pots and staging, and leave rolls of corrugated cardboard around for them to shelter in. Moist sacking can be left on the paths in the evening and checked for sheltering adults in the morning, along with the underside of plant pots (another favourite hiding place). If things get out of hand, commercial biocontrols are available.

## White rot

White rot is the most serious disease affecting alliums (mainly onions) in the UK because it persists in the soil for so long – up to 18 years. Look out for plants that appear yellow and stunted. When lifted, they show signs of a white or grey



mould around the base, and in advanced cases you may see pinhead-sized black spheres forming. Lift and use the affected crop immediately, but do not compost it. White rot is practically impossible to eliminate but at least you can stop it from spreading. Follow the soil hygiene recommendations as for club root (see page 164).

## Whitefly

Whitefly are found in clusters on the underside of leaves, and fly up in clouds when disturbed. Damage tends to be slight, with some yellowing and stunting of growth, but the real danger in a polytunnel is the sticky honeydew that the whitefly secrete. This can act as a trigger for sooty moulds, which are far more damaging than the whitefly themselves.

If whitefly are found, light infestations can be dealt with by spraying the colony with insecticidal soap early each morning, over several days. More serious infestations can be dealt with using the biocontrol *Encarsia* (a tiny parasitic wasp), but this is not an instant fix, and if you intend to use it you should avoid using any insecticides at all, since residues on the foliage may kill the biocontrol when it arrives. A better option while you wait for your *Encarsia* may be to use a 'dust-buster' (hand-held vacuum cleaner) around the plants during the afternoon, which will at least reduce the numbers of active adults.

## Woodlice

Woodlice are generally beneficial creatures because they break down decaying vegetable matter quickly and browse on moulds and fungi, but they can be a nuisance in the tunnel because of their tendency to attack soft young growth. There are no products to control them without also killing beneficial insects, so the best strategy is to keep the tunnel free of debris of all kinds, and make sure that any compost used as a soil dressing is well rotted, as woody material will cause a woodlouse population explosion. To reduce the numbers of woodlice in trouble spots in your tunnel, leave bait such as cooked potato (or, better yet, moistened ground rice) out overnight with a plant saucer or tile on top of it. Woodlice attracted to the bait can be removed the following morning.

# Looking after the soil

Every experienced organic gardener knows that there is one part of their plot's structure that must never be ignored, and that is the soil itself. Soil is a living thing, a bustling ecosystem as complex as any rainforest, and every single leaf that you grow depends on it for support, for nutrients, and for water. Conventional agriculture tends to regard soil as an inert medium that just has to hold a few key elements that can be mechanically spread when the ground is empty, and indeed this seems to work to start off with. Over time, however, the damage done to the soil by chemical treatment and constant ploughing becomes obvious.

## Andy says:

“One of my hobbies is metal detecting, which involves a lot of walking through fields with a spade. The difference between soils that have been intensively cultivated with big doses of nitrogen and those that have been organically managed with manures, green or otherwise, is staggering. You don't even have to dig a hole to see it. Intensively cultivated soil is lifeless and thin with very few worms – just stones and dust, really, and any bronze coins in it will have been eaten away to nothing by the fertiliser. Organic soils are positively bursting with life by comparison, and you can sense them ticking away even when no crops are growing.”

In a vibrant outdoor soil there is constant recycling of material, with fallen leaves being pulled down by worms and decomposed by fungi and bacteria, which in turn die and become part of the soil themselves. This is not true in vegetable gardens and most especially not in the polytunnel, where it doesn't even rain. Instead, it is up to you to provide food and moisture for the soil by top dressing and watering, and by applying occasional supplements. Thankfully, it's not all that difficult.

## Feeding the tunnel

While digging organic matter into new beds is essential, feeding from that point on is something that's a little more complicated. Which should you use – compost or manure? Are there advantages to one over the other? How often should you feed, either with one of the above or with a commercial liquid feed such as tomato food?

## Feeding polytunnel beds

Every bed in the polytunnel should be given a dressing of at least 7cm of good compost or about half as much well-rotted manure once a year, preferably in April or May, and light soils will gain additional benefit from a smaller application of compost in October or November. Use additional fertilisers only as needed for hungrier plants, but keep an eye on the general condition of the soil using a soil-testing kit once every few years. Apply dressings to the soil surface or fork them in lightly rather than digging, because deep digging disturbs the soil structure. Worms will take care of the rest for you.

Watering deeply rather than 'little and often' encourages plants to develop strong root systems that will resist temporary dryness, and a soaker hose is an effective way to deliver a lot of water with little effort. However, don't rely on a soaker hose as a complete irrigation solution. Instead, think of it as providing background watering; thirstier plants will still need hand watering, and all the soil needs some top watering to encourage worms to take top dressings down into the soil, and to stop the top layers of soil from turning to dust.

## Manure

Animal manure is a traditional way of adding nutrients and organic material to soil. It must always be allowed to rot under cover for several years before use, and although this doesn't kill all weed seeds, it's much easier than making a compost heap. You simply pile up the manure, put a tarpaulin over it, and leave it to rot down. Garden centres charge quite a lot of money for professionally composted manures, while stables are usually happy for you to take manure away for nothing. Lighter manures such as really well-rotted horse manure are low enough in nitrogen to use every year, and this makes for a really rich soil that most plants love.

*Fresh manure should never be used on any vegetable bed as it is extremely high in soluble nitrogen and ammonia, and can kill plant tissue very quickly. Moreover, it is full of potentially dangerous organisms, and even well-rotted manure should not be used anywhere near plants that will be eaten raw.* Disregard this advice at your peril, or you could find yourself suffering from (at best) a squiffy tummy for a day or so, or (at worst) a dose of salmonella. It's worth remembering that even if you do decide to take the risk, it doesn't really matter how much care you put into placing manure around salad plants, as you are very likely to splash some of around it when watering – and quite probably some will land on your lettuce.

Many gardening books specifically recommend using manure, but this is purely because if you can get it directly from a horse owner or a farmer, it is essentially free; there are no other real advantages over compost. Wherever you get your

manure, make sure that it is from an organic source because the risk of accidentally contaminating your tunnel soil with pesticide residues (as many growers did during the aminopyralid debacle of 2008) is not worth taking.

## Compost

Compost is generally a better option than manure and is the principal means of feeding the polytunnel soil, although not the only means. Always use the best organic compost that you can get hold of. Ideally that means making your own (and we include some books in the Resources section to help you do just that), but if not, you will need to buy quite a lot of it: 70 litres for each square metre of bed.

Home-made compost ideally begins as alternate layers of 'browns' (drier, high-carbon material) and 'greens' (wetter, high-nitrogen material) placed in a large heap. Never add meat, fish, grain products or cooked vegetables, or you are likely to find rodents setting up camp nearby. The composting process can be of two types, 'cold' or 'hot', depending on how the pile is treated after first being made.

- **A cool pile**

Cool composts are simply left alone for several months to a year, and after an initial burst of heat it is the activity of worms and low-temperature fungi and bacteria that creates the compost. It can take ages, which is why these piles are often made and then left over winter. Eventually, nice-looking compost is the result, but it may still contain seeds, bacteria and fungi from whatever was used to make it. If you have used manure to make your cold compost, the lack of high temperatures makes it just as unsuitable as manure itself for use around plants that are to be eaten raw (see left).

- **A hot pile**

Hot compost piles are turned every few days, ensuring that the contents become mixed and aerated. A hot pile makes compost much more quickly than a cool one: all the material in it can be converted within as little as two weeks, generating heat along the way. Because of the insulating nature of a big pile of compost and its cover (very important, or heavy rainfall can cool everything again), heat builds up as the bacteria break down the vegetable matter. Eventually the whole thing reaches a high enough temperature to kill seeds and disease organisms throughout the entire pile.

If you do have to buy commercial compost, buy an all-purpose or potting compost rather than a 'soil improving' or mulching compost, because these latter types can contain a lot of woody material, which can cause a population explosion of woodlice in your polytunnel.

The most expensive brands are not always the best: commercial organic composts are highly variable, not only from brand to brand but also from batch to batch – so when you buy, examine a single bag before you purchase the rest. If it is sodden, full of lumps or contaminated with a suspicious-looking amount of plastic (it seems curious that organic compost can contain such rubbish, but there you are), look at a different brand. You can also buy compost in bulk from the nearest supplier you can find (your local authority may be able to tell you which they use), but unless you are lucky enough to live on a manufacturer's doorstep-delivery costs are likely to be prohibitive, and the quality of bulk composts can leave a lot to be desired. Always ask for a sample by mail.

### Tip

#### Learn to hot compost

Hot composting is absolutely the best way to provide the large quantities of top-quality organic compost that your tunnel needs, and is a skill really worth acquiring. Any vacant area outside can be sown with a green manure such as rye, mustard or forage peas specifically for the purpose of making compost – and all that goodness can then be brought into the tunnel. Compost is black gold.

## Leafmould

If you are working with very heavy or very light soils, the more organic material you can add the better. However, there are limits to how much compost and manure you can add before plants start to be damaged by the rocketing nutrient levels, and this is where leafmould comes in. It contains very low levels of nutrients, and so is a useful way to boost the level of humus in the soil without feeding it. This humus acts as a reservoir for existing nutrients, which means that it helps to unlock the plant foods in heavy soils, and can help light soils to hold on to what they have.

Leafmould could not be easier to make. In autumn, collect the fallen leaves of deciduous trees and pile them into an open-sided container such as a cylinder of chicken wire nailed to a post, and leave it for a year or two. There is no need to cover the cylinder unless the leaves tend to blow away.

## Excess salt build-up

Any time you're adding chemical fertilisers to the soil, liquid or otherwise, there is a possibility that far more of a particular component is being added than the plants actually want, and this leads to a build-up of salts that may damage them. In severe cases, the plants just die. However, before that you may see a white

residue building up on the surface. This is probably an indication of nutrient salts than can't be used, although you will also get it if you use tap water for top watering in hard-water areas.

In this case, water, water, water – with no fertiliser added. The only way to reduce the levels of salts is to flush them away, down into the subsoil, where they will be less likely to be affect your plants.

## Other additives

**Sterilised bonemeal** provides a slow-release form of organic phosphate that promotes strong root growth, and is particularly useful when planting new shrubs and trees.

**Seaweed extract** contains natural plant growth stimulants and a range of trace elements, and has been shown to make plants less susceptible to pest and disease attack. Liquid feeds are a useful way to provide a short-term boost to plants that need it, rather than being an integral part of feeding the bed. For the long term, you need to feed the soil itself, and the basic choice is between compost and manure.

**Human urine** is sometimes used as a liquid feed, being essentially sterile and extremely high in nitrogen, with an NPK (nitrogen, phosphorus and potassium) ratio of around 11:1:2. However, it can also be high in salt, which can accumulate in the soil over time, and therefore in the polytunnel it can be recommended only for providing a short-term boost for leafy plants. It is, however, an excellent ingredient for a compost heap. Urine used for watering should be diluted 1:5 with water, or 1:10 for seedlings.

## Comfrey, the wonder plant

Weight for weight, comfrey leaves contain very similar levels of NPK to manure and compost. A liquid feed made from 14lb of leaves rotted in 20 gallons of water is substantially higher in N, P and K than commercially available liquid feeds. Added to a fresh compost pile, comfrey leaves are so high in nutrients that they help the entire pile heat up – and they are large and brittle, so very easy to chop up with a spade.

As a general feed *and* mineral supplement that your plants will love, comfrey tea is hard to beat. It's very easy to make at home, although the traditional method of rotting chopped leaves in a barrel of water is extremely smelly. For a method of making comfrey tea without the odour, see the box overleaf.



If you want to grow comfrey, make sure you buy a variety called ‘Bocking 14’. This was bred (by Lawrence Hills in the 1950s) to produce sterile seeds, so it won’t spread to cover your entire garden, and is propagated solely from root cuttings. It will therefore stay more or less where you plant it, although it will spread out in a clump that gets a little bigger each year.

## Tip

### Comfrey tea

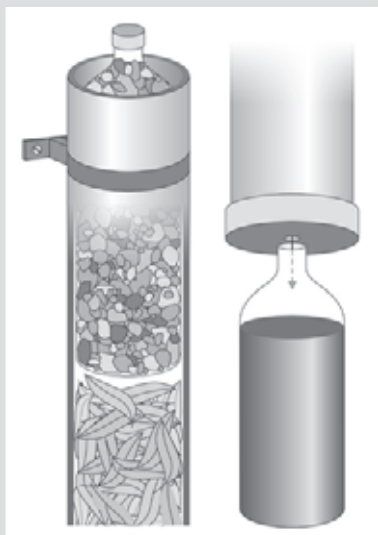
If you can spare a corner of the garden for some ‘Bocking 14’ comfrey plants, you can make a powerful liquid fertiliser from the leaves. This is very smelly to do in a bucket or barrel, but you can use a length of drainpipe to make a concentrated ‘tea’ with no smell at all.

Using proprietary clips, fix a 2m length of drainpipe to the wall of a garage or shed, positioning it just high enough to fit a drinks bottle underneath. Seal the bottom end of the pipe with a plant saucer with a hole drilled through the middle of it and plenty of silicone sealant. The top end also gets a plant saucer, but this is just fitted on loosely. You will need to find a fizzy drinks (soda) bottle that fits down the pipe fairly snugly: fill it with sand or gravel, and tie a 2m length of polypropylene twine around the neck to pull it back out with later. Tie the other end of the twine around the top drain bracket.

Stuff the drainpipe with comfrey leaves, then put the sand-filled bottle on top to weight it down. Put the top cap on to the drainpipe, and fit the drinks bottle underneath the hole in the bottom. In a couple of weeks the leaves will begin to rot, and black comfrey extract drips down into the drinks bottle. When the bottle fills up, put a lid on it and replace it with an empty one, and store the full bottle in a dark place. Because less air gets at the liquid, less smell is produced than with the

traditional method, and although using the extract can be a bit smelly, the odour soon disperses. If you need lots of the extract for the outdoor garden, you can keep topping the drainpipe up once or twice a week, but always use what you make within a few months.

With no water added, this extract is a very concentrated form of comfrey tea and should be diluted to a tenth of its strength with water before use on the soil, or to a fortieth of its strength for use as a foliar feed. This means that for watering, a one-litre bottle of the extract is just enough for a ten-litre watering can. For use as a foliar feed, you only need 25ml (approximately two tablespoons) per litre, or 250ml per ten-litre watering can.



Comfrey will do spectacularly well in a wide variety of conditions and is happy in full sun or almost total shade. Having a high water content, it prefers damp soil. If you have a light or sandy soil, add plenty of organic matter before the comfrey goes in.

While the flowers attract bees and other insects by the score – always a good thing for a garden – it's the root system that makes comfrey special – and just about impossible to get rid of. Comfrey roots grow up to 3 metres deep to extract minerals from the subsoil; hence the high mineral content of the leaves.

They are also very brittle, so when you dig up a plant you're bound to leave some of it behind and it will soon reappear. Given this, consider carefully where you want your comfrey to grow *before* you plant it.

Plant the root segments in a block, 60-90cm apart each way. When the plants flower, cut everything back to 10-15cm tall. Wear stout gloves when handling as comfrey is covered in tiny hairs that cause skin irritation in most people. Comfrey dies back in winter but grows again in the spring.

If comfrey is not suitable for your plot, **comfrey pellets** are available, which contain all the benefits of comfrey leaves – NPK, trace elements, minerals, vitamins and plant hormones – in a dried pellet form that can be applied as a top dressing or used to make a mild liquid feed.

## Mineral deficiencies

Mineral deficiencies manifest in different ways on different plants, but certain symptoms are an almost sure sign of a problem. If yellowing patches appear on leaves (especially between the veins) or scorched areas develop at leaf edges, or if growing tips grow poorly and then suddenly die for no apparent reason, it's probably time to introduce a seaweed mineral supplement such as SM3 from Chase Organics (available from the Organic Gardening Catalogue – see Resources section). You should see a difference in just a couple of days.

For a longer-term solution, you may wish to consider applying a dressing of rock dust (marketed in the UK as SEER Rockdust® – see Resources section – or easily available from any nearby quarry) to re-mineralise the soil every few years. Although the scientific evidence supporting the use of rock dust is far from clear, anecdotal evidence abounds and there is a lot of user testimony to the value of rock dust in re-mineralising poor soils.

Overleaf is a list of some mineral deficiency symptoms to watch for in your tunnel crops.

## **Broad beans**

**Calcium:** Growth deformation, together with the death of growing points and young stems.

**Magnesium:** Yellowing of the leaves between the veins, but with green edges.

## **Dwarf French and French beans**

**Calcium:** Thin, stunted growth where everything wilts, and premature leaf drop. Yellow mottling on the older leaves but with greener veins.

## **Beetroot**

**Magnesium and/or iron:** Strong yellowing of older leaves with red tinting.

**Manganese:** Severe yellow speckling and triangular leaf growth.

## **Cabbage**

**Calcium:** Distortion and cupping of younger leaves with scorching of the edges.

**Iron and/or manganese:** Severe marbling on the older leaves.

**Molybdenum:** Cupped leaves and yellow mottling, especially near leaf edges, and dead patches on growing tips and leaf margins.

## **Carrots**

**Calcium:** Leaves wither and die early, and generally sparse growth.

**Magnesium:** Widespread yellowing of leaves.

## **Cauliflower**

**Calcium:** Young leaves curl as they grow, and the plant generally collapses.

**Magnesium:** Yellow marbling followed by orange and red tints.

**Manganese:** Narrow leaf growth with curling and brown spots near the edges.

**Molybdenum:** Cupped leaves and yellow mottling, especially near leaf edges, and dead patches on growing tips and leaf margins.

## **Celery**

**Calcium:** Younger growing points die.

**Magnesium:** Strong yellow mottling of older leaves near edges.

**Manganese:** Dull green leaves with yellow edges.

## **Kale**

**Calcium:** Distortion and cupping of younger leaves with scorching of the edges.

**Magnesium and/or iron:** Strong yellow marbling of older leaves.

**Manganese:** Cupped leaf growth and brown, dead spots with mottled edges.

## **Lettuce**

**Calcium:** Distorted, scorched leaf edges with a tendency to botrytis infection.

**Magnesium:** Serious yellow marbling on older leaves.

**Manganese:** Serious yellow marbling that affects the whole plant.

## **Peas**

**Calcium:** Younger stems and leaves wilt and die.

**Magnesium:** Yellow patches between the leaf veins but with green edges.

**Manganese:** Yellow patches between leaf veins that starts at the leaf edges.

## **Potato**

**Calcium:** Younger growth curled and scorched at the edges; an appearance very similar to frost burn.

**Magnesium:** Pale growth and older leaves dying early. This can also appear as a strong yellowing of leaves between the veins with some patches becoming brown. It is easily confused with the circular brown spots caused by blight.

**Iron:** Yellow younger growth with green veins, but with scorched edges and growing tips.

**Manganese:** Brown spots developing along veins near growing tips.

## **Spinach**

**Manganese:** Severe yellowing of the leaves.

## **Sweetcorn**

**Magnesium:** Strong red/purple tints on the leaves and bright yellow lines appearing between the leaf veins.

## **Tomato**

**Calcium:** Growing points die followed by gradual leaf death. This deficiency can also cause 'blossom end rot'.

**Magnesium:** Strong yellowing between leaf veins but with a green leaf border and/or a mottled green top on otherwise ripe fruit.

**Iron and/or manganese:** Growing tips showing strong yellow mottling.

**Molybdenum:** Yellow mottling of leaves generally, curled growth and the death of growing tips.

# RESOURCES

## Books

*Back Garden Seed Saving: Keeping our vegetable heritage alive.* Sue Stickland and Susanna Kendall (2008), eco-logic books. A simple, crop-by-crop account of how to save your own seeds using only things that you're likely to have in your own kitchen. Available at a subsidised price from Real Seeds (see Suppliers, overleaf).

*Green Guides: Compost.* Rachelle Strauss (2009), Flame Tree Publishing. A friendly and comprehensive book suitable for beginners.

*How to Store Your Garden Produce: The key to self-sufficiency.* Piers Warren (2008, revised edition), Green Books. A good guide to storing fruit and vegetables properly in the UK, extending their usefulness and adding variety to your diet all year round.

*How to Make and Use Compost: The ultimate guide.* Nicky Scott (2009), Green Books. A no-nonsense approach to composting that gets the core process down to six straightforward pages. Also includes how to turn your finished compost into usable organic mixes, including seedling and potting compost.

*The Polytunnel Handbook.* Andy McKee and Mark Gatter (2008), Green Books. Our own comprehensive guide to all the technical aspects of owning a polytunnel, from planning your purchase to looking after it once it's up. Invaluable for beginners.

*Salad Leaves for All Seasons: Organic growing from pot to plot.* Charles Dowding (2008), Green Books. A comprehensive and inspiring manual for growing salads to put the supermarkets to shame, including recipes from Charles's wife Susie.

## Organisations and useful websites

### **Farm In My Pocket**

The authors' own website. Features polytunnel information not included in this book, and a growing range of homesteading (self-sufficiency) resources.

[www.farminmypocket.co.uk](http://www.farminmypocket.co.uk)



**Garden Organic**

The national charity for organic growing. This is a great website with lots of information about organic vegetable growing. Becoming a member allows you to search the information archives and join in forum discussions.

[www.gardenorganic.org.uk](http://www.gardenorganic.org.uk), 02476 303517

**The Potato Council**

Provides a free service to warn registered users about reported outbreaks of blight in their area (up to five postal districts), by email or text message. Using this service can tell you when it is time to start preventative spraying with bicarbonate of soda during Smith Periods.

[www.potato.org.uk/blight](http://www.potato.org.uk/blight)

**Blightwatch**

Similar to the Potato Council's warning service (see above), except that the alerts are for Smith Periods reported in the user's area. Once you have been warned that blight is active in your area, your plants are at risk during all reported Smith Periods.

[www.blightwatch.co.uk](http://www.blightwatch.co.uk)

**The SEER Centre**

A Scottish charity dedicated to researching and promoting the regeneration of soils with Rockdust®. Includes links to suppliers and some interesting research.

[www.seercentre.org.uk](http://www.seercentre.org.uk)

**The Ethical Consumer freezer-use guidelines.**

Explains what to look for when you buy and how to make your freezer as efficient as possible.

[www.ethicalconsumer.org/FreeBuyersGuides/electricalappliances/fridgefreezers.aspx](http://www.ethicalconsumer.org/FreeBuyersGuides/electricalappliances/fridgefreezers.aspx)

## Suppliers

**The Organic Gardening Catalogue**

A fairly comprehensive catalogue run by Garden Organic (see above) and Chase Organics in Surrey. Not all their seed is organic, but this is clearly indicated by variety. Includes heritage and modern varieties, herbs, flowers and green manures, organic composts and fertilisers, biological pest controls, organic gardening books and gifts.

[www.organiccatalog.com/catalog](http://www.organiccatalog.com/catalog)

**The Real Seed Catalogue**

A great source for organic open-pollinated seed for growing *and* saving, focusing on heritage as well as earlier strains of well-known varieties. Frank and friendly,

in contrast to the glossy hype of major seed retailers.  
[www.realseeds.co.uk](http://www.realseeds.co.uk), 01239 821107

**Heritage Seed Library**

Run by a mixture of Garden Organic staff and volunteers, the HSL aims to conserve European vegetable varieties that are either unavailable or not widely so, including many that you will not find anywhere else. All varieties with sufficient stock are shared with the membership.

[www.gardenorganic.org.uk/hsl](http://www.gardenorganic.org.uk/hsl), 02476 303517

**First Tunnels**

A polytunnel supplier with a modern 'shopping basket'-style website that makes it easy to order polytunnel sundries, such as clips and clamps, rather than just complete kits. Also has a useful online feature to help you work out the size of poly sheet you need to re-cover an existing tunnel.

[www.firsttunnels.co.uk](http://www.firsttunnels.co.uk)

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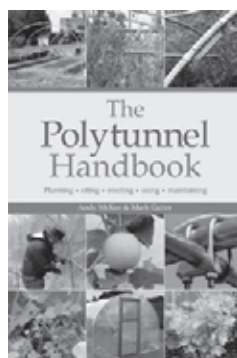
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